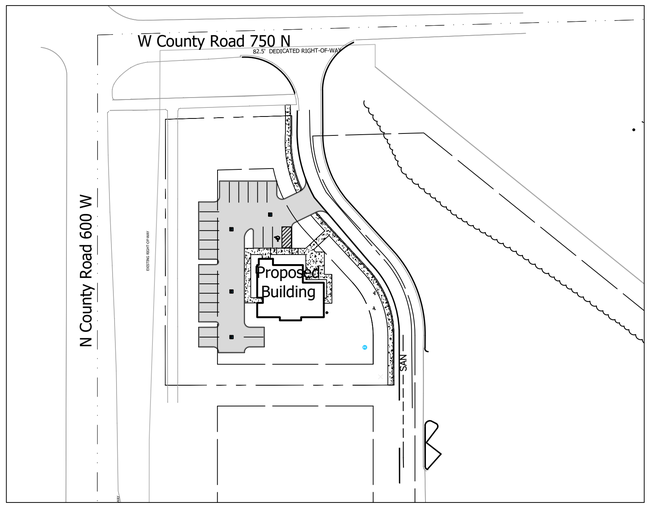
NEW DENTIST OFFICE
@ MCCORDSVILLE CORNER SHOPPES
7473 NORTH CR 600 WEST

VICINITY MAP

SCALE: N.T.S.

DEVELOPER:
McCordsville Corner Shoppes, LLC.
3850 Priority Way South Drive, Suite 100
Indianapolis, IN 46240
Phone: 317-818-1441
Fax: 317-818-1755

ENGINEER:
ROGER WARD ENGINEERING
6555 Carrollton Avenue
Indianapolis, Indiana 46220
Phone: 317-251-1738
Fax: 317-251-1923



SITE MAP

SCALE : 1" = 40'

UTILITIES-McCORDSVILLE

NOTE:
The nature, size, and location of utilities are per plans and locations provided by the respective utility companies together with field observeation. The following list constitutes some, if not all, of the utility companies which provide service in the area of, and adjacent to, the subject project, based upon the information availalbe through such plans and locations, and any incidental visual inspection. All utility companies should be notified prior to any excavation for field location of services and verification of size and nature of services.

WATER
Indianapolis Water Company
1220 Waterway Boulevard
Indianapolis, IN 46201
(317) 631-1431

ELECTRIC
Indianapolis Power & Light
25 Monument Circle
Indianapolis, IN 46206
(317) 261-8261

ELECTRIC
Central Indiana Power
2243 E. Main Street
Greenfield, IN 46140
(317) 477-2237

SEWERS
Public Works
Town of McCordsville
5759 West Broadway
McCordsville, IN 46055
(317) 335-3493

STREETS
Public Works
Town of McCordsville
5759 West Broadway
McCordsville, IN 46055
(317) 335-3493

GAS
Vectren
P.O. BOX 6248
Indianapolis, IN 46206
(317) 776-5526
Attn: Jerry Breeck

TELEPHONE
Hancock Telecom
8250 North 600 West
McCordsville, IN 46055
(317) 326-3131

REVISIONS

DATE:	DESCRIPTION
../../..	...

INDEX

SHEET No.	DESCRIPTION
C100	Cover Sheet
C101	Existing Conditions & Demolition Plan
C102	Site Plan
C103	Grading Plan
C104	Utility Plan
C105	Erosion Control Plan
C106	Erosion Control Details
C107	Erosion Control Notes
C108	General Specifications
L101	Landscape Plan
	Lighting Plan
	McCordsville, Indiana Town Standards

Indiana 811 Know what's below. Call before you dig.

ROGER WARD ENGINEERING INCORPORATED
CIVIL ENGINEERS - LAND PLANNERS - DEVELOPMENT CONSULTANTS
6555 CARROLLTON AVENUE
INDIANAPOLIS, INDIANA 46220
(317) 251-1738 (FAX) 251-1923
www.rw-engineering.com

COVER SHEET

Designed By: GSB | Checked By: RW
Drawn By: GSB | Checked By: RW

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2.–
3.–
4.–

NEW DENTIST OFFICE
@ McCORDSVILLE CONER SHOPPES
7473 NORTH CR 600 WEST
McCORDSVILLE, INDIANA

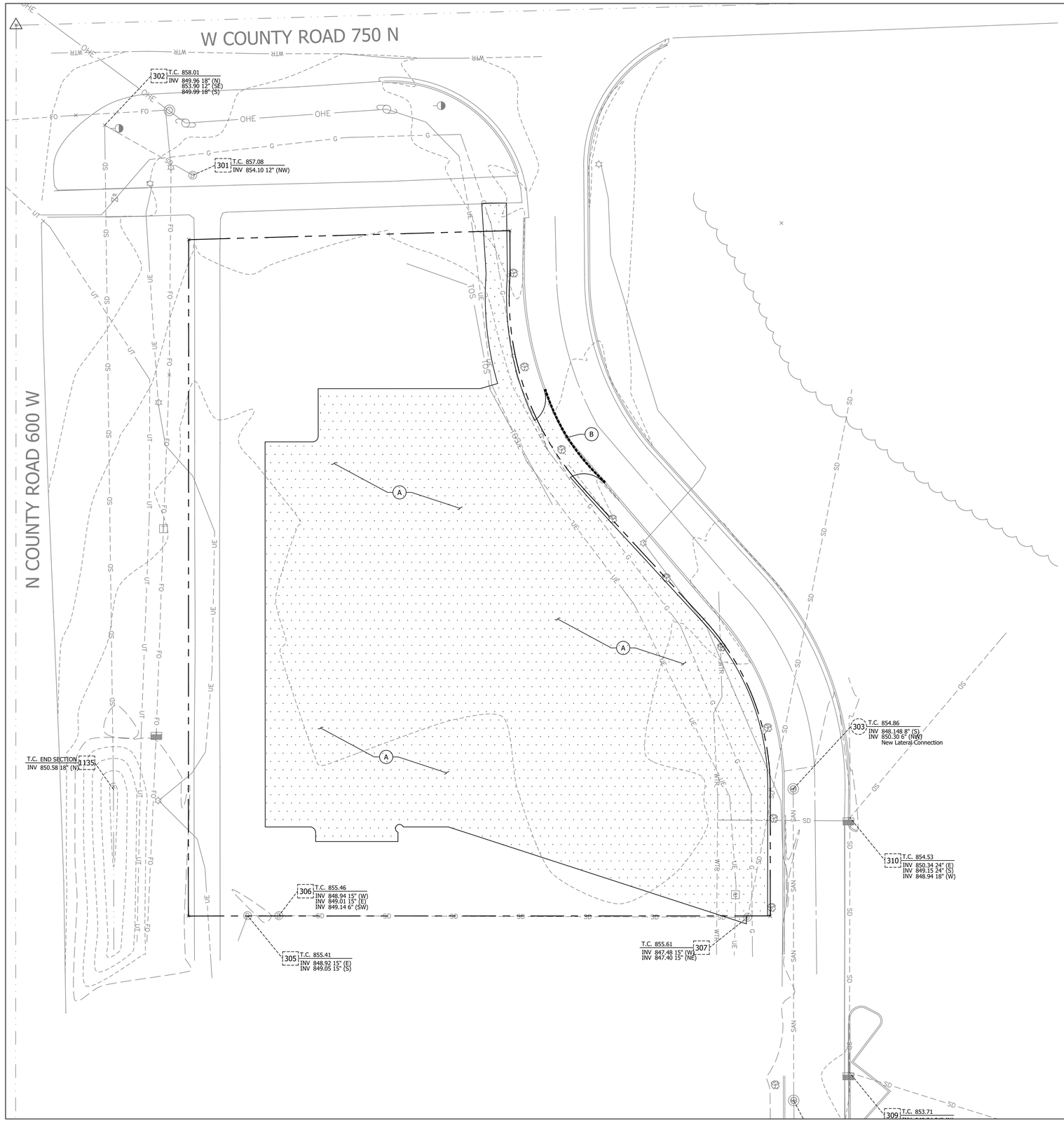
ROGER C. WARD — APPROVAL PENDING - NOT FOR CONSTRUCTION — REGISTERED PROFESSIONAL ENGINEER

BY:

DATE: 10–22–2021

SHEET
C100
OF
XX

JOB#: RUI.007



UTILITY NOTE

The locations of all existing underground utilities shown on this plan are based upon above ground evidence (including, but not limited to, manholes, inlets, valves, and marks made upon the ground by others) and are speculative in nature. There may also be other underground utilities for which there is no above ground evidence or for which no above ground evidence was observed. the exact location of existing underground utilities shall be verified by the contractor prior to any and all construction.

FEMA FLOOD ZONE NOTE

Zone	Explanation
"x"	areas determined to be outside 500-year floodplain.

the subject property is not located in a special flood hazard area as established by the Federal Emergency Management Agency National Flood Insurance Program as per scaled interpretation of Flood Rate Map #18059C0018D area in Zone "x" map dated December 4, 2007.

0 10 20 40

SCALE: 1"=20'

DEMOLITION REMOVAL ITEMS:

- (A) STRIPPING OF EXISTING GRASS AND SOIL
- (B) REMOVE EXISTING CURB
- STRIPPING OF EXISTING GRASS, SOIL, MULCH, AND GRAVEL
- REMOVE EXISTING CURB

SYMBOL LEGEND

Curb Inlet	WV	Water Valve		Post Indicator Valve
Storm Manhole		Fire Hydrant		Fire Dept. Connect
Storm Inlet		Water Meter		Handicap Parking
Sanitary Manhole	GMTR	Gas Meter		Sign
Clean Out	GV	Gas Valve		Bollard
Telephone Manhole		Electric Meter		Existing Tree
Traffic Manhole		Area Light		Capped Rebar Set
Telephone Pedestal		Utility Pole		Benchmark
Electric Transformer		Guy Anchor	MW	Monitoring Well
Electric Pedestal		Yard Light		Concrete
Cable Pedestal	A/C	Air Conditioner		Gravel

- UT — Underground Telephone Marking
- WTR — Underground Water Line Marking
- OE — Overhead Utility Lines
- G — Underground Gas Line Marking
- SD — Storm Pipe Underground
- UE — Electric Line Marking

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www.rw-engineering.com

EXISTING CONDITIONS & DEMOLITION PLAN

Designed By: GSB
Drawn By: GSB
Checked By: RW
Checked By: RW

REVISIONS:
1.–
2.–
3.–
4.–

NEW DENTIST OFFICE @ McCORDSVILLE CONER SHOPPES
7473 NORTH CR 600 WEST
McCORDSVILLE, INDIANA

ROGER C. WARD
APPROVAL PENDING - NOT FOR CONSTRUCTION
PROFESSIONAL ENGINEER

BY:

DATE: 10-22-2021

SHEET C101 OF XX

JOB#: RUI.007

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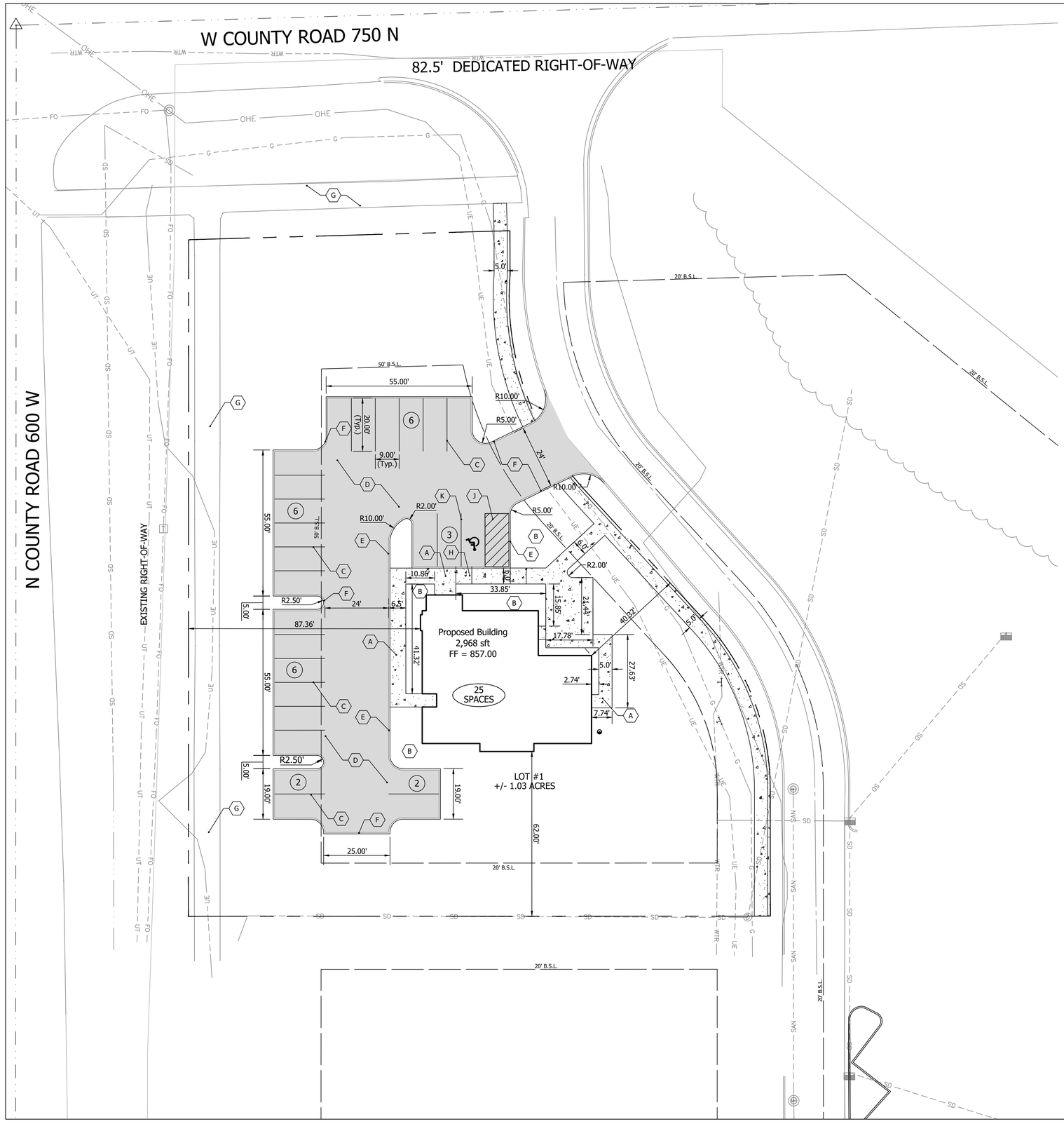
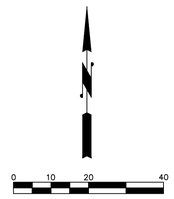


SITE NOTES

1. All dimensions shall be to the back of curb.
   -all dimensions from building shall be from face of building.
2. All radii in paved areas shall be 5' unless noted otherwise.
3. The contractor shall verify all dimensions in field before starting construction. the contractor shall be responsible for all field dimensions. If any discrepancies are found in these plans from actual field condition, the contractor shall contact the engineer immediately.
4. Provide smooth transitions from new areas to existing features as necessary.
5. All areas where the existing pavement or pavements are damaged during construction from traffic by the general contractor, subcontractors, or suppliers shall be resurfaced or reconstructed at least to their original condition after construction work is completed to the satisfaction of the city where such work is in the right-of-way.
6. All radii indicated shall be formed as circular arcs.
7. All dimensions are parallel and perpendicular to base lines, property lines or building lines unless otherwise noted.
8. Disabled ramp and signage shall be in accordance with federal, state, county, city and local code whichever has jurisdiction.
9. All stripes are to be 4" painted, white, unless otherwise noted.
10. The contractor shall be responsible to provide, at his expense, all automobile and pedestrian traffic control devices required by federal, state, county, city or local agency. the amount, location and size shall be per the direction of agency.
11. It is the responsibility of the contractor to remove all mud, dirt, gravel, and any other materials tracked onto any public or private streets or sidewalks. the contractor must clean these daily if necessary. The contractor must use water or other methods to keep airborne dust to a required minimum.
12. All paving within the existing and proposed city right-of-way shall conform to the requirements of the department of code enforcement. contractor shall contact the department of enforcement to schedule a pre-construction meeting to review the department's construction requirements, staff notification requirements, required inspections for certain stages of the work and to review the authority of the department as it relates to work within the existing and proposed city right-of-way.
13. Contractor shall field verify all existing utilities prior to the start of construction. all conflicts and newly identified utilities shall be brought to the engineer's attention prior to the start of construction. all costs associated with the relocation shall be at contractors expense.
14. All areas between parking and sidewalks shall be grass unless otherwise noted.

SITE LEGEND

- A — 4" CONCRETE WALK
- B — GRASS/LANDSCAPE
- C — 4" PAINTED WHITE PAVEMENT STRIPE
- D — FULL DEPTH PAVEMENT
- E — INTEGRAL CURB AND GUTTER
- F — STANDARD 6" CURB
- G — EXISTING ASPHALT PATH TO REMAIN
- H — PROPOSED ADA RAMP
- J — 4" PAINTED BLUE PAVEMENT STRIPE @ 45° 2' O.C.
- K — 4" PAINTED BLUE PAVEMENT STRIPE



SCALE: 1"=20'

SYMBOL LEGEND

Curb Inlet	WV	Water Valve		Post Indicator Valve	
Storm Manhole	FDC	Fire Hydrant		Fire Dept. Connect	
Storm Inlet	WM	Water Meter		Handicap Parking	
Sanitary Manhole	GM/TR	Gas Meter		Sign	
Clean Out	GV	Gas Valve		Bollard	
Telephone Manhole		Electric Meter		Existing Tree	
Traffic Manhole		Area Light		Capped Rebar Set	
Telephone Pedestal		Utility Pole		Benchmark	
Electric Transformer		Guy Anchor	MW	Monitoring Well	
Electric Pedestal		Yard Light		Concrete	
Cable Pedestal	AC	Air Conditioner		Gravel	

- UT — Underground Telephone Marking
- WTR — Underground Water Line Marking
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(317) 251-1738 (FAX) 251-1923
www.rw-engineering.com

SITE PLAN

Designed By: GSB
Drawn By: GSB
Checked By: RW
Checked By: RW

REVISIONS:
1.–
2.–
3.–
4.–

NEW DENTIST OFFICE
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McCORDSVILLE, INDIANA

ROGER C. WARD
APPROVAL PENDING - NOT FOR CONSTRUCTION
REGISTERED PROFESSIONAL ENGINEER

BY: [signature]

DATE: 10-22-2021

SHEET
C102
OF
XX

JOB#: RUI.007

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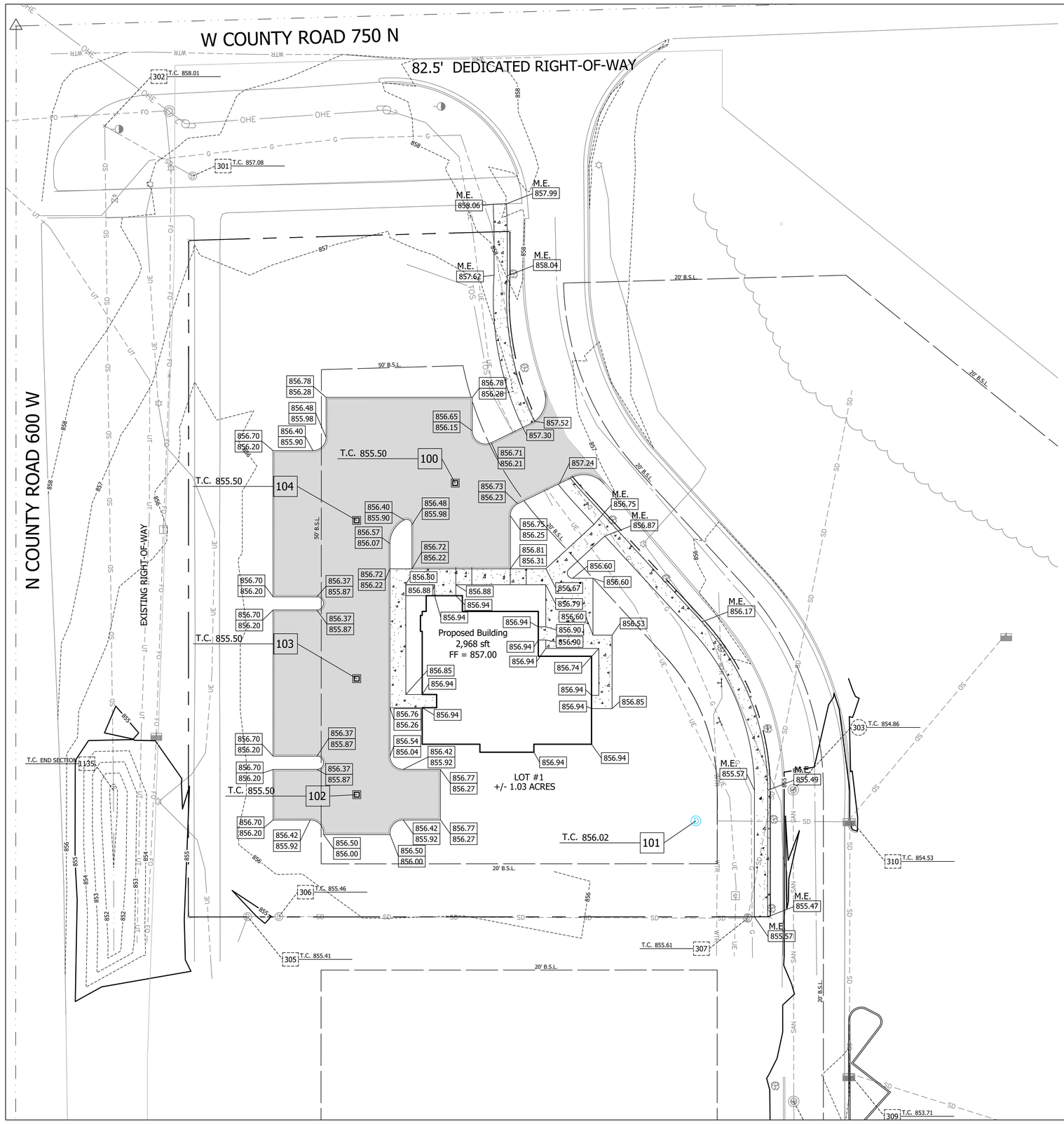

GRADING NOTES

1. PROVIDE POSITIVE DRAINAGE IN ALL AREAS. PAVING CONTRACTOR SHALL TEST FOR ANY PONDING CONDITIONS AFTER INSTALLATION AND CORRECT.
2. PROVIDE SMOOTH TRANSITION FROM NEW AREAS TO EXISTING FEATURES AS NECESSARY.
3. ALL AREAS WHERE PROPOSED ASPHALT PAVEMENT MEETS THE EXISTING PAVEMENT THE EXISTING PAVEMENT EDGE SHALL BE PROPERLY SEALED WITH A TACK COAT MATERIAL.
4. THE EXCAVATING CONTRACTOR MUST TAKE PARTICULAR CARE WHILE EXCAVATING AROUND EXISTING TREES SO NOT TO DISTURB AND TO MINIMIZE OR ELIMINATE DAMAGE TO ROOT SYSTEM.
5. THE EXCAVATING CONTRACTOR MUST TAKE PARTICULAR CARE WHEN EXCAVATING IN AND AROUND EXISTING UTILITY LINES AND EQUIPMENT. VERIFY COVER REQUIREMENTS BY UTILITY CONTRACTORS AND/OR UTILITY COMPANIES SO NOT TO CAUSE DAMAGE.
6. THE EXCAVATING CONTRACTOR OR LANDSCAPING CONTRACTOR SHALL INSTALL THE FINISH GRADE AT 1/2" BELOW PAVEMENTS WHEN SHEET DRAINAGE IS PROPOSED ACROSS THAT SEEDED AREA.
7. ALL AREAS WHERE THE EXISTING PAVEMENT OR PAVEMENTS ARE DAMAGED DURING CONSTRUCTION FROM TRAFFIC BY THE GENERAL CONTRACTOR, SUBCONTRACTORS OR SUPPLIERS, SHALL BE RESURFACED OR RECONSTRUCTED AT LEAST TO THEIR ORIGINAL CONDITION AFTER THE CONSTRUCTION WORK IS COMPLETED.
8. T.C. SHALL INDICATE THE ELEVATION THAT WATER WOULD ENTER A STRUCTURE WHEN STRUCTURE IS NOT A CURB INLET. T.C. SHALL INDICATE TOP OF CURB WHEN STRUCTURE IS A CURB INLET.

LEGEND:

EXISTING		PROPOSED
740	CONTOUR LINE	749
753.00	SPOT ELEVATION	753.00 OR 752.50
	MATCH EXISTING GRADE	M.E.
	STORM INLET	
	STORM MANHOLE	
X T.C. XXX	STORM CALLOUT	XXX T.C. X
EX T.C. XXX	SANITARY CALLOUT	
	CONCRETE	
	FULL DEPTH HMA PAVEMENT	

0 10 20 40

SCALE: 1"=20'

SYMBOL LEGEND

	Curb Inlet	WV	Water Valve		Post Indicator Valve
	Storm Manhole		Fire Hydrant		Fire Dept. Connect
	Storm Inlet		Water Meter		Handicap Parking
	Sanitary Manhole	GAS	Gas Meter		Sign
	Clean Out	GV	Gas Valve		Bollard
	Telephone Manhole		Electric Meter		Existing Tree
	Traffic Manhole		Area Light		Capped Rebar Set
	Telephone Pedestal		Utility Pole		Benchmark
	Electric Transformer		Guy Anchor		Monitoring Well
	Electric Pedestal		Yard Light		Concrete
	Cable Pedestal		Air Conditioner		Gravel

UT — Underground Telephone Marking
WTR — Underground Water Line Marking
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GRADING PLAN

Designed By: GSB
Drawn By: GSB
Checked By: RW
Checked By: RW

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NEW DENTIST OFFICE
@ McCORDSVILLE CONER SHOPPES
7473 NORTH CR 600 WEST
McCORDSVILLE, INDIANA

ROGER C. WARD — APPROVAL PENDING - NOT FOR CONSTRUCTION — REGISTERED PROFESSIONAL ENGINEER

BY:

DATE: 10-22-2021

SHEET C103 OF XX

JOB#: RUI.007

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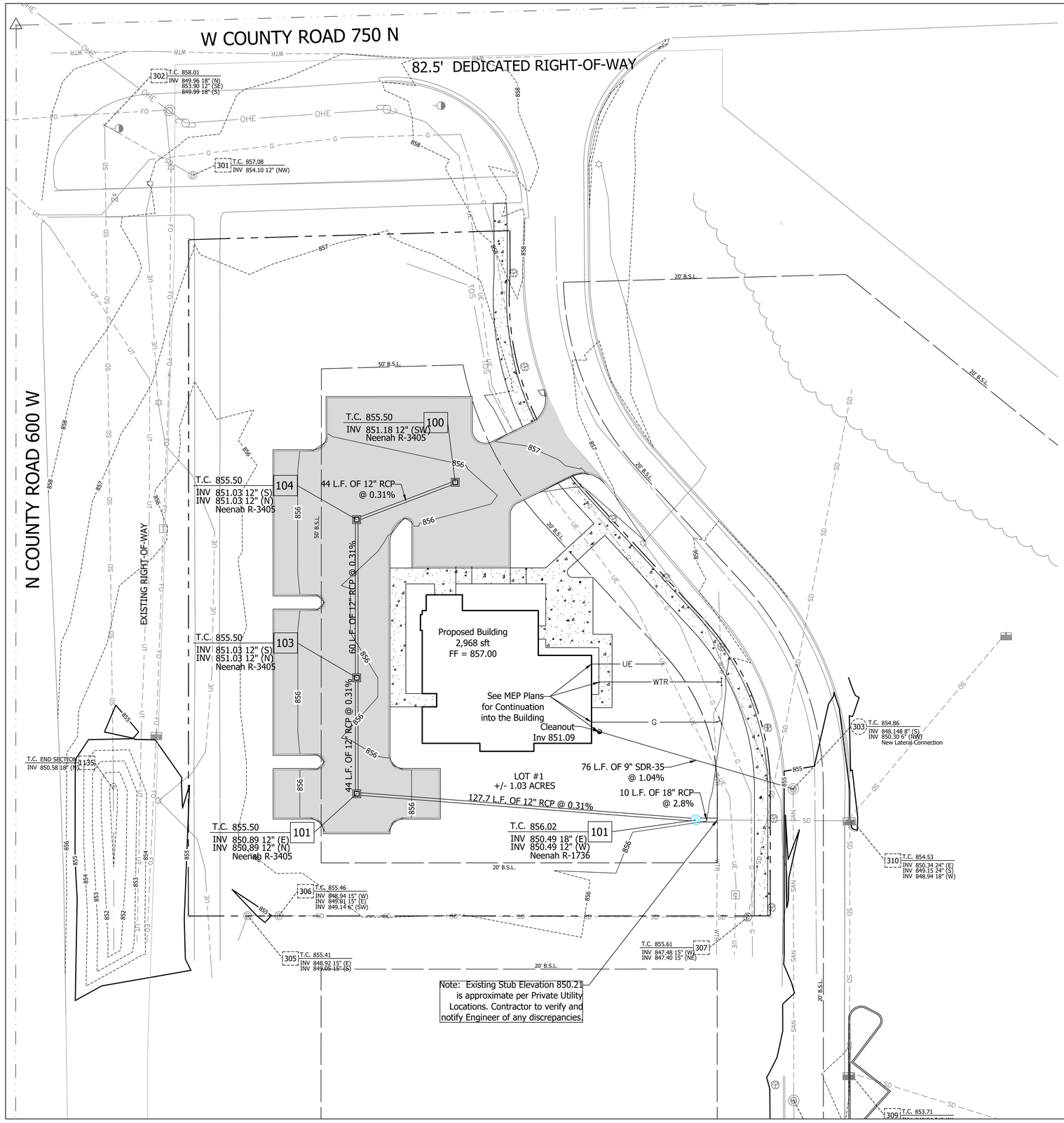


UTILITY NOTE

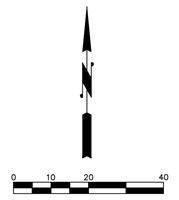
THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED UPON MARKINGS PROVIDED BY PRIVATE UTILITY LOCATE SERVICE. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL ONSITE UTILITIES.

GENERAL NOTES

1. IT SHALL BE THE RESPONSIBILITY OF EACH SUBCONTRACTOR TO VERIFY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO THEIR PHASE OF WORK. IT SHALL ALSO BE THE SUBCONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES FOR PROPER STAKE LOCATION OF EACH UTILITY BEFORE WORK IS STARTED. THE SUBCONTRACTOR SHALL NOTIFY IN WRITING THE OWNER AND THE ENGINEER OF ANY CHANGES, OMISSIONS, OR ERRORS FOUND ON THESE PLANS OR IN THE FIELD BEFORE WORK IS STARTED OR RESUMED.
2. STANDARD SPECIFICATIONS FOR THE LOCAL GOVERNING AGENCY SHALL APPLY FOR ALL SANITARY SEWERS, STORM SEWERS, AND WATER MAINS.
4. ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB, UNLESS NOTED OTHERWISE.
5. THE EDGE OF EXISTING ASPHALT PAVEMENT SHALL BE PROPERLY SEALED WITH A TACK COAT MATERIAL IN ALL AREAS WHERE NEW ASPHALT PAVEMENT IS INDICATED TO JOIN EXISTING ASPHALT.
6. ANY PART OF THE SANITARY OR STORM SEWER TRENCHES RUNNING UNDER OR WITHIN 5' OF PAVED AREAS TO BE BACKFILLED WITH GRANULAR MATERIAL.
7. REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS. ALL UTILITY CROSSINGS UNDER PAVEMENT SHALL BE BORE & JACK, AVOID OPEN CUTS.
8. ANY FARM TILES ENCOUNTERED DURING CONSTRUCTION SHALL BE REMOVED OR TIED TO THE PROPOSED DRAINAGE SYSTEM.

NOTE

SEE THE McCORDSVILLE, INDIANA TOWN STANDARDS FOR RELEVENT DETAILS CONCERNING UTILITIES.



SCALE: 1"=20'

SYMBOL LEGEND

	Curb Inlet	WV	Water Valve		Post Indicator Valve
	Storm Manhole		Fire Hydrant		Fire Dept. Connect
	Storm Inlet		Water Meter		Handicap Parking
	Sanitary Manhole	GATE	Gas Meter		Sign
CO	Clean Out		Gas Valve		Bollard
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OE — Overhead Utility Lines
G — Underground Gas Line Marking
SD — Storm Pipe Underground
UE — Electric Line Marking

EX T.C. XXX INV XXX — EXISTING SANITARY CALLOUT

X T.C. XXX INV XXX — EXISTING STORM CALLOUT

XXX T.C. X INV XXX — PROPOSED STORM CALLOUT

XXX T.C. X INV XXX INV XXX — PROPOSED SANITARY CALLOUT

PROPOSED CONCRETE

PROPOSED FULL DEPTH HMA PAVEMENT

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UTILITY PLAN

Designed By: GSB
Drawn By: GSB
Checked By: RW
Checked By: RW

REVISIONS:
1.
2.
3.
4.

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ROGER C. WARD — APPROVAL PENDING - NOT FOR CONSTRUCTION — REGISTERED PROFESSIONAL ENGINEER

BY:

DATE: 10-22-2021

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JOB#: RUI.007

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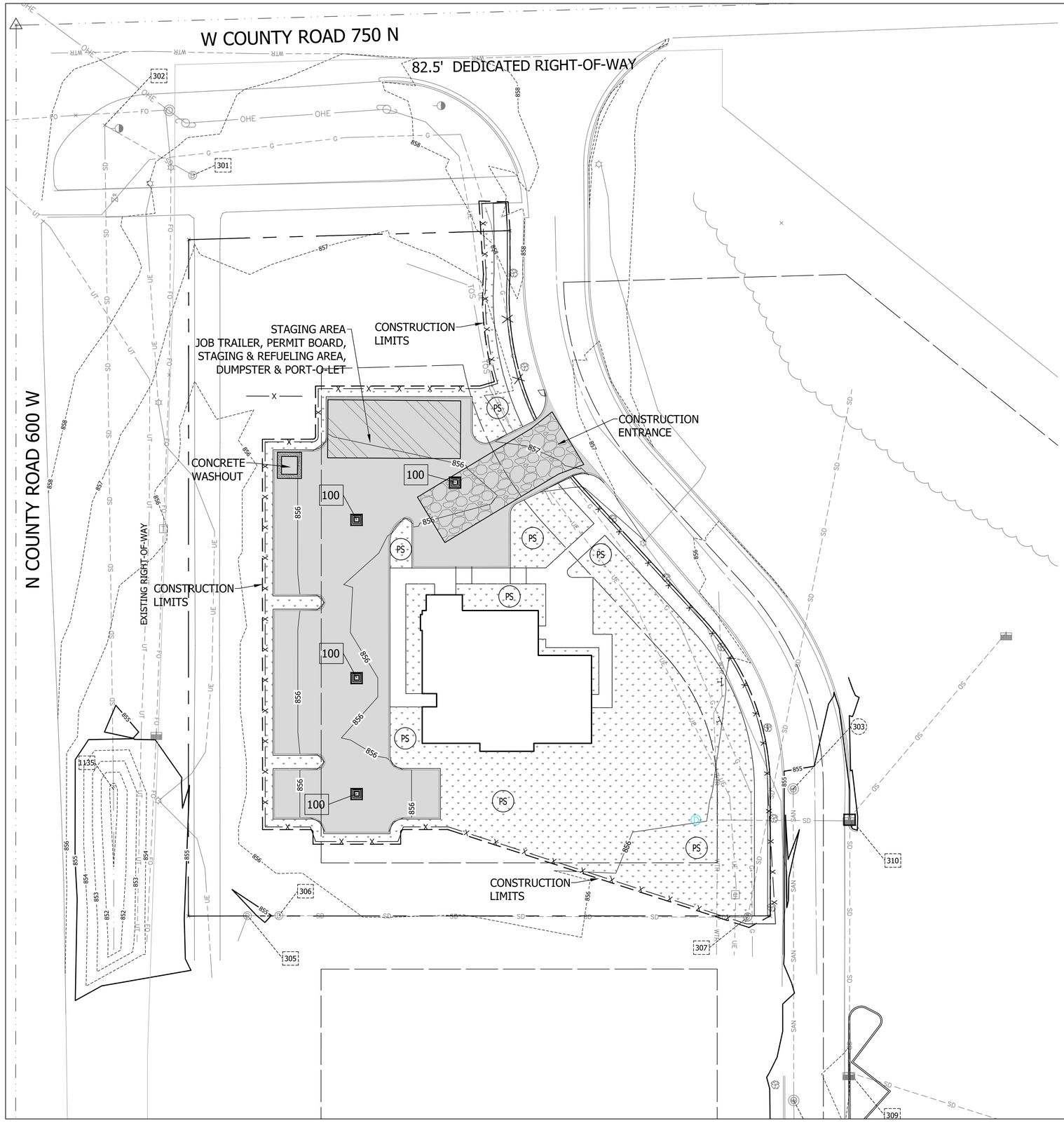


EROSION CONTROL NOTES

1. CONTRACTOR SHALL INSTALL ALL REQUIRED SILT FENCES, SILT TRAPS, TREE PROTECTION AND INLET PROTECTION FOR EXISTING INLETS PRIOR TO THE START OF ANY EARTH MOVING OR STRIPPING.

2. CONTRACTOR SHALL INSTALL A STONE CONSTRUCTION ENTRANCE OR SOME OTHER DEVISE PRIOR TO THE START OF EARTHWORK AS NECESSARY TO PREVENT SOIL FROM BEING TRACKED OR WASHED INTO EXISTING ROADWAYS.

3. LAND ALTERATIONS WHICH STRIP THE LAND OF VEGETATION, INCLUDING REGRADING, SHALL BE DONE IN A WAY THAT WILL MINIMIZE EROSION. WHENEVER FEASIBLE, NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED. AS GRADING IS DONE, INSTALL SILT TRAPS, SILT FENCES, SLOPE DRAINS, TEMPORARY DIVERSIONS AND OTHER RUNOFF CONTROL MEASURES AT APPROPRIATE LOCATIONS TO KEEP SEDIMENT CONTAINED ON SITE.

4. ALL DISTURBED AREAS SHALL BE SEEDED AND STRAW MULCHED AS SHOWN ON THE PLANS IMMEDIATELY AFTER
COMPLETION OF GROUND ACTIVITY. FOR LARGE PROJECTS, THIS SEEDING SHOULD BE COMPLETED IN PHASES AS THE DIFFERENT AREAS OF THE SITE ARE COMPLETED.

5. PERMANENT AND FINAL VEGETATION OR STRUCTURAL EROSION CONTROL DEVICES SHALL BE INSTALLED AS SOON AS PRACTICAL UNDER THE CIRCUMSTANCES.

6. THE DURATION OF TIME WHICH AN AREA REMAINS EXPOSED SHALL BE KEPT TO A PRACTICAL MINIMUM DEPENDING UPON THE WEATHER. IF CONSTRUCTION ACTIVITY IS TO CEASE FOR MORE THAN TWO WEEKS, THE DISTURBED AREAS SHALL BE TEMPORARILY SEEDED.

7. ALL STORM SEWER INLET PROTECTION DEVICES SHALL BE PUT IN PLACE AT THE TIME EACH INLET IS CONSTRUCTED.

8. THE CONTRACTOR SHALL MAINTAIN EROSION CONTROL MEASURES AND DEVICES DURING CONSTRUCTION AND UNTIL SILTATION OF THE STREETS AND STORM SEWERS WILL NO LONGER OCCUR.

9. ONCE ONSITE EROSION AND SILTATION OF THE STREETS AND STORM SEWERS WILL NO LONGER OCCUR, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE TEMPORARY EROSION CONTROL DEVICES.

10. THESE GENERAL PROCEDURES MAY NOT COVER ALL SITUATIONS. REFER TO EROSION CONTROL PLANS FOR
SPECIFIC NOTES AND ADDITIONAL DETAILS.

11. EROSION CONTROL TO COMPLY WITH INDIANA 327 IAC AND RULE #5, AND IDEM'S INDIANA STORM WATER QUALITY MANUAL (OCT. 2007) IN DEVELOPING AREAS.

12. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED IN THE FIELD BY THE INSPECTOR.

13. SITE CONTRACTOR SHALL INSTALL ALL TEMPORARY SEEDING.

14. ABSOLUTELY NO STRAW SHALL BE USED FOR ANY SEEDED AREAS. HYDRO-MULCH OR APPROVED EQUIVALENT SHALL BE THE ONLY ACCEPTABLE MUCH FOR SEEDED AREAS.

DEVELOPMENT SUMMARY

SITE INFORMATION :
SITE AREA = 44,867 S.F./1.03 AC.
TOTAL DISTURBED SITE AREA = 29,624 S.F./0.680 +/-AC.

HYDROLOGIC UNIT CODE

HUC-14: 05120201100140

REQUIRED STATE/FEDERAL WATER QUALITY PERMITS

IDEM NOI Permit

SITE NOTE

NO EARTH DISTURBING ACTIVITY MAY COMMENCE WITHOUT AN APPROVED STORMWATER MANAGEMENT PLAN.

CONSTRUCTION NOTES

1. ALL CONSTRUCTION METHODS AND MATERIALS MUST CONFORM TO CURRENT STANDARDS AND SPECIFICATIONS OF THE FEDERAL, STATE, COUNTY OR LOCAL REQUIREMENTS, WHICHEVER HAS JURISDICTION.
2. THE CONTRACTOR SHALL SWEEP THE CONSTRUCTION ENTRANCE AREA DAILY TO ENSURE THAT SOILS AND DEBRIS ARE CLEARED FROM THE ENTRANCE.
3. ALL EXCAVATED MATERIAL SHALL BE BE HAULED OFF UPON EXCAVATION. THERE SHALL BE NO STOCKPILING OF MATERIAL ONSITE.

CONCRETE WASHOUT NOTES

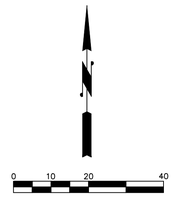
1. CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
2. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
2. CONTRACTOR SHALL PLACE SANDBAGS AROUND WASHOUT AREAS LOCATED ON PAVEMENT FOR SECONDARY CONTAINMENT.
3. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND/OR ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
4. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED
OF AT AN ACCEPTED WASTE SITE.
5. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE CLEANED AND REPAIRED OR OTHERWISE STABILIZED IN A MANNER ACCEPTED BY THE TOWN OF FORTVILLE.

ERU CALCULATION

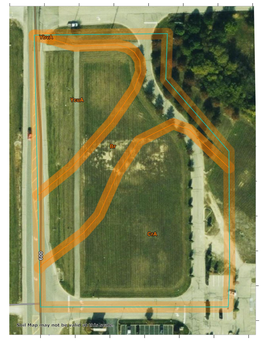
TOTAL IMPERVIOUS: 16,058 SQFT / 3500 SQFT = 4.6 ERU

EROSION CONTROL CONTACT

MCS Shoppes LLC
ATTN: Rory UNderwood
15481 Union Chapel Rd., Suite 100
Nobleville, IN 46060
Ph: (317) 922-1223
Email: runderwood@revelunderwood.com



SCALE: 1"=20'



SOILS MAP

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Br	Brookston silty clay loam, 0 to 2 percent slopes	1.0	26.3%
CrA	Crosby silt loam, New Castle Till Plain, 0 to 2 percent slopes	2.0	51.5%
YtuA	Brookston silty clay loam-Urban land complex, 0 to 2 percent slopes	0.0	0.1%
YtuA	Crosby silt loam-Urban land complex, 0 to 2 percent slopes	0.9	22.2%
Totals for Area of Interest		3.9	100.0%

LEGEND

- EXISTING CONTOUR LINE (710)
- PROPOSED CONTOUR LINE (710)
- SILT FENCE / STRAW WATTLE (PERIMETER CONTROL) (X)
- INLET PROTECTION
- PERMANENT SEEDING & MULCH (PS)

SYMBOL LEGEND

Curb Inlet	Water Valve	Post Indicator Valve
Storm Manhole	Fire Hydrant	Fire Dept. Connect
Storm Inlet	Water Meter	Handicap Parking
Sanitary Manhole	Gas Meter	Sign
Clean Out	Gas Valve	Bollard
Telephone Manhole	Electric Meter	Existing Tree
Traffic Manhole	Area Light	Capped Rebar Set
Telephone Pedestal	Utility Pole	Benchmark
Electric Transformer	Guy Anchor	Monitoring Well
Electric Pedestal	Yard Light	Concrete
Cable Pedestal	Air Conditioner	Gravel

- UT — Underground Telephone Marking
- WTR — Underground Water Line Marking
- OE — Overhead Utility Lines
- G — Underground Gas Line Marking
- SD — Storm Pipe Underground
- UE — Electric Line Marking

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www.rw-engineering.com

EROSION CONTROL PLAN

Designed By: GSB
Drawn By: GSB
Checked By: RW
Checked By: RW

REVISIONS:
1.
2.
3.
4.

NEW DENTIST OFFICE
@ McCORDSVILLE CONER SHOPPES
7473 NORTH CR 600 WEST
McCORDSVILLE, INDIANA

ROGER C. WARD
APPROVAL PENDING - NOT FOR CONSTRUCTION
REGISTERED PROFESSIONAL ENGINEER

BY:

DATE: 10-22-2021

SHEET
C105
OF
XX

JOB#: RUI.007

Indiana 811 Know what's below. Call before you dig.

	SOIL CONDITION			Shade Tolerance	Ability to 2- 3 1/2inches	Trampling Tolerance	Fertility Needs	Winter Hardiness	Flooding Tolerance (days)	Mature Height (inches)	Emergence Time (days)	Salt Tolerance		
	Wet	Norm	Dry									Gen.	Soil	Spray
Creeping Red Fescue Festuca rubra	2	1	2	1	1	1	Med.	1	20-25	12-18	7-21			S
Kentucky Bluegrass Poa pratinsis	2	1	2	1	1	1	Med.	1	25-35	12-18	10-20			MT
Tall Fescue Festuca L arundinacea	2	1	2	1	1	1	Low	1	24-35	24-36	5-14		T	
Perennial ryegrass Lolium perenne	2	1	2	-	1	2	Med-High	2	15-20	12-18	5-10		MT	
Crownvetch Coronilla varia	-	1	1	2	-	-	Low	1	5-10	24	14-21	T		
Red Clover Trifolium pratense	-	1	-	2	-	-	Med.	1	7-10	18	5-10	S	S	

Ranking:
1 Good
2 Medium
- Not tolerant

Salt Tolerance (to both soil salts & spray):
T Tolerance
MT Medium Tolerance
S Slight Tolerance

FIGURE 5-4

Seedbed Preparation

Apply lime to raise the pH to the level needed for species being seeded. Apply 23 pounds of 12-12-12 analysis fertilizer (or equivalent) per 1000 sq. ft. (approximately 1000 pounds per acre) or fertilize according to test. Application of 150 lbs. of ammonium nitrate on areas low in organic matter and fertility will greatly enhance vegetative growth.

Work the fertilizer and lime into the soil to a depth of 2-3 inches with a harrow, disk or rake operated across the slope as much as possible.

Seeding

Select a seed mixture based on projected use of the area (Figure 5-2), while considering best seeding dates. See Figure 5-3 this sheet. If tolerances are a problem, such as salt tolerance of seedings adjacent to streets and highways, see Figure 5-4 this sheet before final selection.

Mulch Rate

Mulch is to be applied at 2,000 to 3,000 pounds per acre in areas not covered by erosion control blanketing. Mulch must be anchored using a mulch anchoring tool or farm disk with dull, serrated, straight set blades, or bulldozer cleats driven up and down slope.

Figure 5-2: Permanent Seed Mixtures

Species	Seeding Rate lbs/acre	Suitable pH lbs/1000 sq. ft.	Site Suitability* well	Droughty	Drained	Wet
Level and Sloping, Open Areas						
1. Tall Fescue	35 .8	5.5-8.3	2	1	2	
2. Tall Fescue Red Clover**	25 .6 5 .12	5.5-8.3	1			
3. Kentucky Bluegrass Creeping Red Fescue	15 .4 15 .4	5.5-7.5	2	1		
Steep Banks and Cuts						
4. Tall Fescue Kentucky Bluegrass	15 .4 25 .6	5.8-7.5	2	1	2	
5. Tall Fescue Emerald Crownvetch**	35 .8 10 .25	5.5-8.3	2	1		
Lawns and High Maintenance Areas						
6. Kentucky Bluegrass Creeping Red Fescue	40 .9 40 .9	5.8-7.5	2	1		
7. Perennial Ryegrass (Turf Type)	170 4.0	5.0-7.5	1			
8. Tall Fescue	170 4.0	5.5-8.3	2	1	2	

* 1 - Preferred 2 - Will Tolerate ** Inoculate with specific Inoculant.

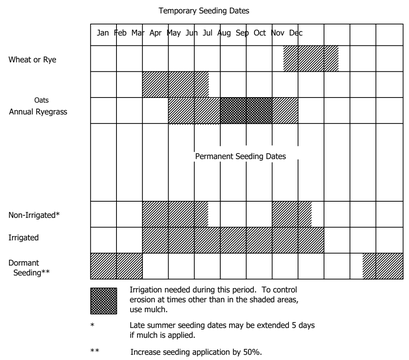
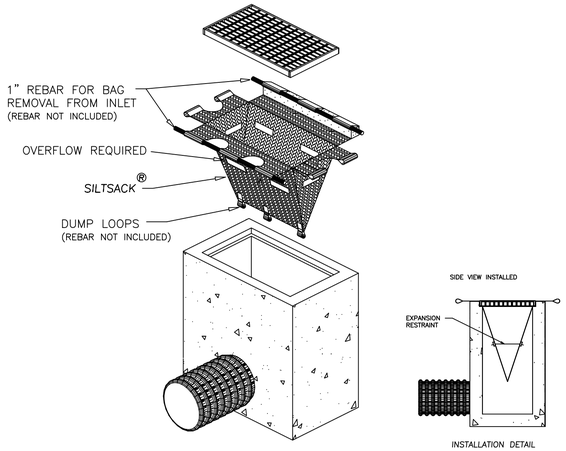


FIGURE 5-3

Temporary Seedings

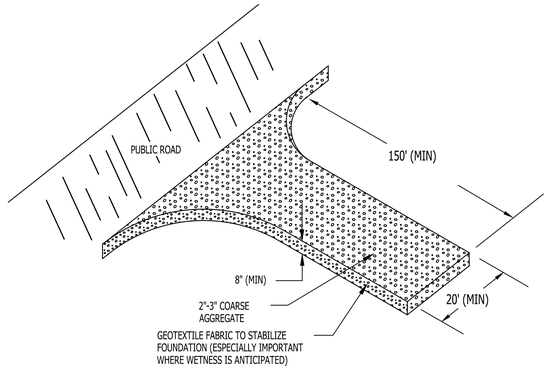
Kind of Seed	1000 Sq. Ft.	Acre	Remarks
Wheat or Rye	3.5 lbs.	2 bu.	Cover seed 1" to 1 1/2" deep
Spring Oats	2.3 lbs.	3 bu.	Cover seed 1" deep
Annual ryegrass	1 lb.	40 lbs.	Cover seed 1/4"deep*

* Not necessary where mulch is applied.

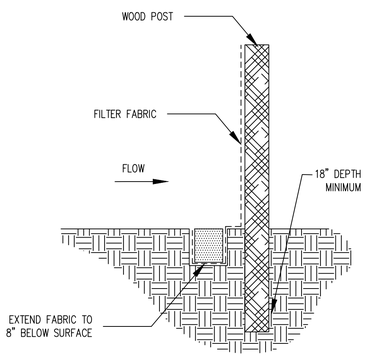


CATCH BASIN SEDIMENT INSERT

NO SCALE



TEMPORARY CONSTRUCTION ENTRANCE DETAIL



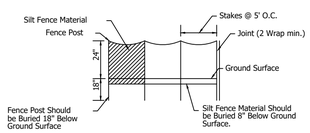
SILT FENCE

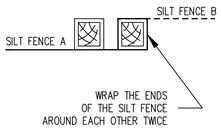
Silt Fence shall be a machine produced, non-woven geotextile of 100% polypropylene meeting the physical properties below.

All stakes shall be 2" X 2" hardwood 36" tall with 24" tall lath stapled to stakes over fabric as reinforcement.

All silt fence shall be prefabricated by the supplier. No field assembly will be accepted.

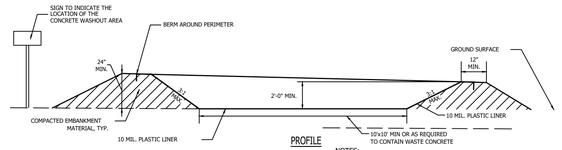
Fabric Weight	4 oz/syd
Grab Strength	Warp 125 lbs.
Elongation	Warp 50 %
Trapezoidal Tear Strength	50 lbs.
Burst Strength	200 psi
UV Resistance	> 70 %
A.O.S.	50-80
Slurry Flow Rate	225 gpm/sq. ft
Sediment Retention	75 %





SILT FENCE DETAIL

(N.T.S.)



PROFILE

NOTES:

1. CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
2. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
3. THE CONCRETE AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
4. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN ACCEPTED WASTE SITE.
5. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER ACCEPTED BY THE CITY.

CONCRETE WASHOUT DETAIL

SCALE: NONE

NOTE:
1. SEE SILT FENCE DETAIL FOR MATERIAL SPECIFICATIONS.
2. SILT FENCE SHALL BE PREASSEMBLED BY SUPPLIER.

INLET PROTECTION - SILT FENCE

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EROSION CONTROL DETAILS

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Designed By: GSB
Drawn By: GSB
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McCORDSVILLE, INDIANA

ROGER C. WARD
APPROVAL PENDING - NOT FOR CONSTRUCTION
FINAL ENGINEERING

BY:

DATE: 10-22-2021

SHEET C106 OF XX

JOB#: RUI.007

Indiana 811 Know what's below. Call before you dig.

(A2) PLAT MAP

N/A

(A3) PROJECT DESCRIPTION

This project is located at 77473 North CR 600 West in McCordsville, Indiana. The overall property is 1.02 acres with a disturbed area of 1.02 ac. The proposed improvements will consist of a new building, new pavement and stormwater infrastructure.

(A4) VICINITY MAP

The vicinity map showing the project location can be seen on sheet C100.

(A5) LEGAL DESCRIPTION

The land description can be seen on sheet C100.

Latitude: 39° 53' 28"N
Longitude: 85° 55' 7"W

(A6) LOT LOCATION AND SITE IMPROVEMENTS

The lot boundaries, utility locations, driveways, structures and parking areas can be seen on the existing site plan (Sheet C100). The proposed site improvements can be seen on C200.

(A7) HYDROLOGIC UNIT CODE

HUC-14: # 05120201100140

(A8) REQUIRED STATE OR FEDERAL WATER QUALITY PERMITS

Rule 5

(A9) STORMWATER DISCHARGE POINTS

Stormwater from the proposed improvements will be collected by the proposed storm sewer system and outlet into an existing stormwater pond located at the South east of the site. The basin outlets into an existing ditch.

(A10) SITE WETLANDS, LAKES AND WATER COURSES

N/A.

(A11) RECEIVING WATERS

Stormwater from the proposed improvements will be collected by the proposed storm sewer system and outlet into an existing stormwater pond located at the South east of the site. The basin outlets into an existing ditch. and eventually the Geist Reservoir

(A12) POTENTIAL DISCHARGES TO GROUNDWATER

No sinkholes or uncapped abandoned wells have been identified on the project site or downstream of the project site.

(A13) 100 YEAR FLOODPLAIN, FLOODWAYS AND FRINGES

Per the FEMA Firm Map for the area, the site does not lie within the limits of a 100-yr floodplain.

(A14) ESTIMATED PEAK DISCHARGE

EXISTING

Existing Conditions: 10-year run-off 2.79 cfs
Existing Conditions: 100-year run-off 5.05 cfs

These numbers were calculated using NRCS II method.

PROPOSED (BEFORE DETENTION)

Proposed Conditions: 10-year run-off 3.75 cfs
Proposed Conditions: 100-year run-off 6.15 cfs

These numbers were calculated using NRCS II method.

(A15) ADJACENT LAND USE

The existing land uses adjacent to the site are as follows:

North: Residential
West: Residential
South: School
East: Agricultural

(A16) CONSTRUCTION LIMITS

The overall disturbed area is approximately 1.02 acres. Please see sheet C500-C501 for the limits of construction.

(A17) EXISTING VEGETATIVE COVER

The existing site has grass and sparse vegetation.

(A18) SOILS MAP

See sheet C500 for the soils map. Soil maps from the United States Department of Agriculture, Soil Conservation Service, Brookston and Crosby silt loam Complex.

(A19) PROPOSED STORMWATER DRAINAGE SYSTEM

The proposed stormwater drainage system consist of new pipes for drainage from the proposed improvements. All impervious surfaces will will sheet drain to proposed storm sewers. These items can be seen on sheet C400.

(A20) OFF-SITE CONSTRUCTION PLAN

No off-site construction is anticipated.

(A21) SOIL STOCKPILE, BORROW AND/OR DISPOSAL

There will be stockpiling of soil on this site during construction, see location on sheet C500

(A22) EXISTING SITE TOPOGRAPHY

Existing contour elevations are shown on Sheet C100.

(A23) PROPOSED SITE TOPOGRAPHY

Proposed contours and spot elevations are shown on Sheet C300.

(B1) POTENTIAL CONSTRUCTION POLLUTANTS

Potential pollutants sources relative to a construction site may include, but are not limited to material and fuel storage areas, fueling locations, exposed soils and leaking vehicle/equipment. Potential pollutants that may appear at the site due to construction activities include, but are not limited to diesel fuel, gasoline, concrete and concrete washout, solid waste, sediment, paint and solvents, equipment repair products, anti-freeze and fertilizer.

(B2) STORMWATER QUALITY SEQUENCE

STEP # 1: CONTRACTOR TO SETUP PRE-CONSTRUCTION MEETING WITH THE MS4 COORDINATOR PRIOR TO CONSTRUCTION. CONTRACTOR TO INSTALL CONSTRUCTION STAGING AREA, PLACE PERIMETER SILT FENCE AND EXISTING INLET SEDIMENT PROTECTION PRIOR TO THE PRE-CON MEETING (1 WEEK PRIOR TO THE START OF CONSTRUCTION).

STEP # 2: OVERALL EARTH WORK SHALL BEGIN THE SECOND WEEK OF CONSTRUCTION, INCLUDING REMOVING THE EXISTING SURFACE PREPARING THE BUILDING PAD. TEMPORARY SEED ALL DISTURBED AREAS IF CONSTRUCTION ACTIVITIES ARE NOT ANTICIPATED WITHIN TEN DAYS AFTER INITIAL DISTURBANCE. (THROUGHOUT THE DURATION OF THE PROJECT)

STEP # 3: CONSTRUCTION OF STORM SEWER, SANITARY LATERAL, AND UTILITIES MAY BEGIN. INSTALL INLET SEDIMENT BARRIERS UPON CONSTRUCTION OF INLETS. AN EXCAVATED DROP INLET SHALL BE PLACED UNTIL INLETS HAVE PAVEMENT AROUND THEM AND SEDIMENT BARRIERS CAN BE PLACED (WITHIN ONE MONTH OF CONSTRUCTION).

STEP # 4: CONTRACTOR SHALL TEMPORARY SEED ANY DISTURBED AREAS DURING CONSTRUCTION OF STORM SEWER, SANITARY SEWER, UTILITIES OR ROADWAYS. (THROUGHOUT THE DURATION OF THE PROJECT)

STEP # 5: FINISH GRADE SLOPES, & MOUNDS. SEED ALL AREAS AS NOTED, AND INSTALL EROSION CONTROL BLANKETING WHERE NOTED.

STEP # 6: COMPLETE DRIVE AISLES/PARKING AREAS. INSTALL PAVEMENT AREA INLET PROTECTION.

STEP # 7: CONSTRUCT BUILDING AND FINAL GRADE OF LANDSCAPE AREAS.

STEP # 8: INSTALL LANDSCAPING AND FINAL SEEDING. SUBMIT IDEM NOT TO IDEM.

NOTE: INSTALL TEMPORARY SEEDING AFTER A SPECIFIC STAGE OF CONSTRUCTION HAS BEEN COMPLETED (TEMPORARY OR FINAL) WHERE AREAS WILL BE IDLE OF CONSTRUCTION ACTIVITIES FOR A PERIOD OF 15 DAYS OR MORE.

GENERAL NOTES

1. CONTRACTOR TO SETUP PRECON MEETING WITH THE MS4/DCE PROJECT MANAGER PRIOR TO ANY DEMOLITION/EARTH DISTURBING ACTIVITIES. CONTRACTOR SHALL INSTALL ALL REQUIRED SILT FENCES, SILT TRAPS, TREE PROTECTION AND INLET PROTECTION FOR EXISTING INLETS PRIOR TO THE START OF ANY EARTH MOVING OR STRIPPING.
2. CONTRACTOR SHALL INSTALL A CONSTRUCTION ENTRANCE OR SOME OTHER DEVISE PRIOR TO THE START OF EARTHWORK AS NECESSARY TO PREVENT SOIL FROM BEING TRACKED OR WASHED INTO EXISTING ROADWAYS.
3. LAND ALTERATIONS WHICH STRIP THE LAND OF VEGETATION, INCLUDING REGRADING, SHALL BE DONE IN A WAY THAT WILL MINIMIZE EROSION. WHENEVER FEASIBLE, NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED. AS GRADING IS DONE, INSTALL SILT TRAPS, SILT FENCES, SLOPE DRAINS, TEMPORARY DIVERSIONS AND OTHER RUNOFF CONTROL MEASURES AT APPROPRIATE LOCATIONS TO KEEP SEDIMENT CONTAINED ON SITE.
4. ALL DISTURBED AREAS SHALL BE SEEDED AND STRAW MULCHED AS SHOWN ON THE PLANS IMMEDIATELY AFTER COMPLETION OF GROUND ACTIVITY. FOR LARGE PROJECTS, THIS SEEDING SHOULD BE COMPLETED IN PHASES AS THE DIFFERENT AREAS OF THE SITE ARE COMPLETED.
5. PERMANENT AND FINAL VEGETATION OR STRUCTURAL EROSION CONTROL DEVICES SHALL BE INSTALLED AS SOON AS PRACTICAL UNDER THE CIRCUMSTANCES.
6. THE DURATION OF TIME WHICH AN AREA REMAINS EXPOSED SHALL BE KEPT TO A PRACTICAL MINIMUM DEPENDING UPON THE WEATHER. IF CONSTRUCTION ACTIVITY IS TO CEASE FOR MORE THAN TWO WEEKS, THE DISTURBED AREAS SHALL BE TEMPORARILY SEEDED.
7. ALL STORM SEWER INLET PROTECTION DEVICES SHALL BE PUT IN PLACE AT THE TIME EACH INLET IS CONSTRUCTED.
8. THE CONTRACTOR SHALL MAINTAIN EROSION CONTROL MEASURES AND DEVICES DURING CONSTRUCTION AND UNTIL THE NOTICE OF TERMINATION IS APPROVED.
9. ONCE ONSITE EROSION AND SILTATION OF THE STREETS AND STORM SEWERS WILL NO LONGER OCCUR, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE TEMPORARY EROSION CONTROL DEVICES.
10. THESE GENERAL PROCEDURES MAY NOT COVER ALL SITUATIONS. REFER TO EROSION CONTROL PLANS FOR SPECIFIC NOTES AND ADDITIONAL DETAILS
11. EROSION CONTROL TO COMPLY WITH INDIANA 327 IAC AND RULE #5, AND INDIANA HANDBOOK FOR EROSION CONTROL IN DEVELOPING AREAS
12. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED IN THE FIELD BY THE INSPECTOR.

(B3) CONSTRUCTION ENTRANCE INFORMATION

The location of the construction entrance is shown on sheet C500. and details shown on sheet C501 the entrance is to be cleaned daily to keep soil from being tracked offsite by exiting vehicles.

(B4) SHEET FLOW SEDIMENT CONTROL

N/A

(B5) CONCENTRATED FLOW SEDIMENT CONTROL

Temporary seeding will be used as erosion control measures for concentrated flows. The location of each measure is located on sheet C500. The details and specifications for each stated sediment control measure is on sheet C501.

(B6) INLET PROTECTION LOCATIONS AND SPECS

The location of each inlet protection measure is on sheet C500. The details and specifications for each inlet measure are on sheet C501.

(B7) RUNOFF CONTROL MEASURES

N/A

(B8) OUTLET PROTECTION SPECIFICATIONS

N/A

(B9) GRADE STABILIZATION MEASURES

N/A

(B10) STORMWATER QUALITY DETAILS

The use of silt fence, inlet protection will be used for stormwater quality during construction. The location of stormwater quality measures are on sheet C500. The stormwater quality details & specifications are provided on sheet C501.

(B11) TEMPORARY SURFACE STABILIZATION

Temporary seeding will be used as temporary surface stabilization measures. The location of each temporary surface stabilization measure are on sheet C500. The details and specifications for each stated measure are on sheet C501.

(B12) PERMANENT SURFACE STABILIZATION

Permanent seeding will be used as permanent surface stabilization measures. The location of each permanent surface stabilization measure are on sheet C500. The details and specifications for each stated measure are on sheet C501.

(B13) MATERIAL HANDLING AND SPILL PREVENTION

Expected materials that may appear at the site due to construction activities include, but are not limited to petroleum products, fertilizers, paint and solvents, and concrete. Materials shall be stored in the designated material storage area.

Spill prevention for vehicle and equipment fueling shall conform to the following practices: vehicle equipment fueling procedures and practices are designed to prevent fuel spills and leaks, and reduce or eliminate contamination of stormwater. This can be accomplished by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors in proper fueling procedures. Limitations: Onsite vehicle and equipment fueling should only be used where it is impractical to send vehicles and equipment offsite for fueling. Sending vehicles and equipment offsite should be done in conjunction with a Stabilized Construction Entrance/Exit. Implementation: Use offsite fueling stations as much as possible. Discourage "topping-off" of fuel tanks. Absorbent spill cleanup materials and spill kits should be available in fueling areas and on fueling trucks, and should be disposed of properly after use. Drip pans or absorbent pads should be used during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface in a dedicated fueling area. Use absorbent materials on small spills. Do not hose down or bury the spill. Remove the absorbent materials promptly and dispose of properly. Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas. Train employees and subcontractors in proper fueling and cleanup procedures. Dedicated fueling areas should be protected from stormwater runon and runoff, and should be located at least 50 ft away from downstream drainage facilities and watercourses. Fueling must be performed on level-grade area. Protect fueling areas with berms and dikes to prevent runon, runoff, and to contain spills. Nozzles used in vehicle and equipment fueling should be equipped with an automatic shutoff to control drips. Fueling operations should not be left unattended. Federal, state, and local requirements should be observed for any stationary above ground storage tanks.

Vehicles and equipment should be inspected each day of use for leaks. Leaks should be repaired immediately or problem vehicles or equipment should be removed from the project site. Keep ample supplies of spill cleanup materials onsite. Immediately clean up spills and properly dispose of contaminated soils.

Spill prevention for solid waste shall conform to the following practices: Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors. Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures, and building construction. Packaging materials including wood, paper, and plastic. Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces and masonry products. Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes. Construction wastes including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts, Styrofoam and other package construction materials. Select designated waste collection areas and haul-hauling contractors that you will accept only watertight dumpsters for onsite use. Inspect dumpsters for leaks and repair any dumpster that is not watertight. Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy. Plan for additional containers and more frequent pickup during the demolition phase of construction. Collect site trash daily, especially during rainy and windy conditions. Remove this solid waste promptly since erosion and sediment control devices tend to collect litter. Make sure that toxic liquid wastes (sued oils, solvents and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designed for construction debris. Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling contractor. Arrange for regular waste collection before containers overflow. Clean up immediately if a container does spill. Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas. Solid waste storage areas should be located at least 50 ft from drainage facilities and watercourses and should not be located in areas prone to flooding or ponding. Inspect construction waste area regularly. Arrange for regular waste collection.

Spill prevention for concrete washout shall conform to the following practices: Store dry and wet materials under cover, away from drainage areas. Avoid mixing excess amounts of fresh concrete. Perform washout of concrete trucks offsite or in designated areas only. Do not wash out concrete trucks into storm drains, open ditches, streets, or streams. Do not allow excess concrete to be duped onsite, except in designated areas. Locate washout areas at least 50 ft from storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste. Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly. Avoid creating runoff by draining water to a bermed or level area when washing concrete to remove fine particles and expose the aggregate. Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose in the trash.

The cleanup parameters shall conform to the following practices: The developer / homeowners association shall be continually kept informed, maintain lists of qualified contractors and available Vac-trucks, tank pumpers and other equipment readily accessible for cleanup operations. In addition, a continually updated list of available absorbent materials and cleanup supplies should be kept on site. All maintenance personnel will be made aware of techniques for prevention of spills. They will be informed of the requirements and procedures outlined in this plan. They will be kept abreast of current developments or new information on the prevention of spills and / or necessary alteration to this plan. When spills occur which could endanger human life and this become primary concern, the discharge of the life saving protection function will be carried out by the local police and fire departments. Absorbent materials, which are used in cleaning up spilled materials, will be disposed of in a manner subject to the approval of the Indiana Department of Environmental Management. Flushing of spilled material with water will not be permitted unless so authorized by the Indiana Department of Environmental Management.

Spill prevention for vehicle and equipment maintenance shall conform to the following practices: Prevent or reduce the contamination of stormwater resulting from vehicle and equipment maintenance by running a "dry and clean site". The best option would be to perform maintenance activities at an offsite facility. If this option is not available then work should be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills immediately. These procedures are suitable on all construction projects where an onsite yard area is necessary for storage and maintenance of heavy equipment and vehicles. Onsite vehicle and equipment maintenance should only be used where it is impractical to send vehicles and equipment offsite for maintenance and repair. Sending vehicles / equipment offsite should by done in conjunction with a stabilized construction entrance / exit. Out door vehicle or equipment maintenance is a potentially significant source of stormwater pollution. Activities that can contaminate stormwater include engine repair and service, changing or replacement of fluids, and outdoor equipment storage and parking (engine fluid leaks). If maintenance must occur onsite, use designated areas, located away from drainage courses. Dedicated maintenance areas should be protected from stormwater runon and runoff, and should be located at least 50 ft from downstream drainage facilities and water courses. Drip pans or absorbent pads should be used during vehicle and equipment maintenance work that involves fluids, unless the maintenance work is performed over and impermeable surface in a dedicated maintenance area. Place a stockpile of spill cleanup materials where it will be readily accessible. All fueling trucks and fueling areas are required to have spill kits and/or use other spill protection devices. Use absorbent materials on small spills. Remove the absorbent materials promptly and dispose of properly. Inspect onsite vehicles and equipment daily at startup for leaks, and repair immediately. Deep vehicles and equipment clean; do not allow excessive buildup of oil and grease. Segregate and recycle wastes, such as greases, used oil or oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic and transmission fluids. Provide secondary containment and covers for these materials if stored onsite. Train employees and subcontractors in proper maintenance and spill cleanup procedures. Drip pans or plastic sheeting should by placed under all vehicles and equipment placed on docks, barges, other structures over water bodies when the vehicle or equipment is planned to be idle for more than 1 hour. Properly dispose of used oils, fluids, lubricants, and spill cleanup materials. Properly dispose of or recycle used batteries. Do not place used oil in a dumpster or pour into a storm drain or water course. Properly dispose of used oils, fluids, lubricants, and spill cleanup materials. Don not bury tires. Repair leaks of fluids and oil immediately.

Spill prevention for fertilizers shall conform to the following practices: Fertilizer's used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to storm water. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

Spill prevention for paint and solvents shall conform to the following practices: All containers will be tightly sealed and stored when not required for use. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM but will be properly disposed of according to manufacturers' instructions or State or local regulations.

Spill prevention and cleanup shall conform to IDEM form 327 IAC 2-6 and the VERNON TWP FIRE DEPARTMENT (317-485-5354) and IDEM Spill Response Center (888-233-7745) shall be contacted in the case of a material spill occurring.

(B14) MONITORING AND MAINTENANCE GUIDELINES

EROSION CONTROL SCHEDULE — INSPECT ALL MEASURES WEEKLY AND AFTER ANY PRECIPITATION EVENT GRATER THAN 1/2"

EROSION CONTROL MEASURE	* MAINTENANCE	INSTALLATION SEQUENCE
STONE ENTRANCE	AS NEEDED	PRIOR TO CLEARING AND GRADING
INLET PROTECTION	WEEKLY, AFTER STORM EVENTS AND AS NEEDED	PRIOR TO CLEARING AND GRADING
SILT FENCE	WEEKLY, AFTER STORM EVENTS AND AS NEEDED	PRIOR TO CLEARING AND GRADING
TREE PROTECTION	WEEKLY, AFTER STORM EVENTS AND AS NEEDED	PRIOR TO CLEARING AND GRADING
TEMPORARY DIVERSIONS	WEEKLY, AFTER STORM EVENTS AND AS NEEDED	ALONG WITH ROUGH GRADING
RIP-RAP HORSESHOE	WEEKLY, AFTER STORM EVENTS AND AS NEEDED	IMMEDIATELY AFTER DRY-DETENTION BASIN CONSTRUCTION
PERMANENT SEEDING	WATER AS NEEDED	AFTER FINISH GRADING
EROSION CONTROL MATTING	WEEKLY, AFTER STORM EVENTS AND AS NEEDED	AFTER FINISH GRADING
SEED, SOD & LANDSCAPE AROUND BUILDING ADDITION	WATER AS NEEDED	AFTER FINISHED GRADING AROUND BUILDING ADDITION
REMOVAL OF INLET PROTECTION	N/A	AFTER NOT IS APPROVED
REMOVAL OF SILT FENCE	N/A	AFTER NOT IS APPROVED
REMOVAL OF RIP RAP HORSESHOE	N/A	AFTER NOT IS APPROVED

* - SEE CHART FOR MAINTENANCE REQUIREMENTS

(B15) EROSION CONTROL MEASURES FOR INDIVIDUAL BUILDING LOTS

N/A

POST-CONSTRUCTION WATER QUALITY REQUIREMENTS

(C1) POTENTIAL LAND USE POLLUTANTS

Potential pollutant sources that may appear at the site due to proposed land use activities, but are not limited to vehicles, exposed soil and trash. Potential pollutants include, but are not limited to oil, grease, diesel fuel, gasoline, anti-freeze, auto soap and fertilizer.

(C2) STORMWATER QUALITY IMPLEMENTATION

Final stormwater quality measures will be implemented as outlined in the Operations & Maintenance Manual. Please refer to Section C5.

(C3) STORMWATER QUALITY DESCRIPTION

The use of the underground basin and isolator row in the basin will be the primary BMP to remove sediment from the post-construction run-off. Permanent seeding and the keeping vegetative cover on site will also help in the reduction of pollutants in stormwater run-off.

(C4) STORMWATER QUALITY SPECIFICATIONS

The location of each post-construction stormwater quality measure can be seen on sheet C500. The details and specifications of each measure is on sheets C602-C604.

(C5) MAINTENANCE GUIDELINES

An Operations & Maintenance Manual has been prepared for this site. The Owner is responsible for implementing and reporting the post-construction water quality measures as outlined in the O&M Manual.

Any debris in the parking areas should be picked up and placed in the trash receptacle. The parking area shall be kept clean and be swept every 3 months.

Storm Sewer System
Inspect the system every six months. Evaluate the condition of the system and confirm no riprap failures, storm drains are in good condition with no evidence of non-stormwater discharges or excessive sedimentation, inlet and outlet structures are in good repair with no cracks or excessive sediments in the structures, castings well seated and orifice openings free of obstructions. Inspect and clean the system once annually. Call a local company to remove sediments, oil, and other floatable pollutants as required. Dispose of all waste in accordance with federal, state and local requirements. Water and sediment from cleaning procedures should NOT be dumped into a sanitary sewer.

EROSION CONTROL MEASURES MAINTENANCE REQUIREMENTS

SILT FENCE MAINTENANCE REQUIREMENTS

1. INSPECT THE SILT FENCE PERIODICALLY AND AFTER EACH STORM EVENT.
2. IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY.
3. REMOVE DEPOSITED SEDIMENT WHEN IT REACHES HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT OR IS CAUSING THE FABRIC TO BULGE.
4. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEAN OUT.
5. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND SEDIMENT DEPOSITS, BRING THE DISTURBED AREA TO GRADE, AND STABILIZE.

TEMPORARY SEDIMENT TRAP MAINTENANCE REQUIREMENTS

1. INSPECT TEMPORARY SEDIMENT TRAPS AFTER EACH STORM EVENT AND IMMEDIATELY REPAIR ANY EROSION AND PIPING HOLES.
2. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH.
3. REPLACE SPILLWAY GRAVEL FACING IF CLOGGED.
4. INSPECT VEGETATION, AND RE-SEED IF NECESSARY.
5. CHECK THE SPILLWAY DEPTH PERIODICALLY TO ENSURE A MINIMUM OF 1.5 FT. DEPTH FROM THE LOWEST POINT OF THE SETTLED EMBANKMENT TO HIGHEST POINT OF THE SPILLWAY CREST, AND FILL ANY LOW AREAS TO MAINTAIN DESIGN ELEVATION.
6. PROMPTLY REPLACE ANY DISPLACED RIPRAP, BEING CAREFUL THAT NO STONES IN THE SPILLWAY ARE ABOVE DESIGN GRADE.
7. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, REMOVE THE STRUCTURE AND SEDIMENT, SMOOTH THE SITE TO BLEND WITH ADJOINING AREAS, AND STABILIZE.

SANDBAG CURB INLET SEDIMENT BARRIER MAINTENANCE REQUIREMENTS

1. INSPECT FREQUENTLY FOR DAMAGE BY VEHICULAR TRAFFIC, AND REPAIR IF NECESSARY.
2. INSPECT AFTER EACH STORM EVENT.
3. REMOVE SEDIMENT, WITHOUT FLUSHING, WHEN IT REACHES HALF THE HEIGHT OF THE BARRIER.
4. DEPOSIT REMOVED SEDIMENT WHERE IT WILL NOT ENTER STORM DRAINS.

BLOCK AND GRAVEL CURB INLET PROTECTION MAINTENANCE REQUIREMENTS

1. AFTER EACH STORM EVENT, REMOVE THE SEDIMENT AND REPLACE THE GRAVEL; REPLACE THE GEOTEXTILE FABRIC, IF USED.
2. PERIODICALLY REMOVE SEDIMENT AND TRACKED-ON SOIL FROM THE STREET, WITHOUT FLUSHING, TO REDUCE THE SEDIMENT LOAD ON THE CURB INLET PROTECTION.
3. INSPECT PERIODICALLY FOR DAMAGE AND REPAIR; KEEP GRATES FREE OF DEBRIS.
4. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE GRAVEL, WIRE MESH, GEOTEXTILE FABRIC, AND ANY SEDIMENT, AND DISPOSE OF THEM PROPERLY.

EROSION CONTROL BLANKET (SURFACE APPLIED) MAINTENANCE REQUIREMENTS

1. DURING VEGETATIVE ESTABLISHMENT, INSPECT AFTER STORM EVENTS FOR ANY EROSION BELOW THE BLANKET.
2. IF ANY AREA SHOWS EROSION, PULL BACK THAT PORTION OF THE BLANKET COVERING IT, ADD SOIL, RE-SEED THE AREA, AND RE-LAY AND STAPLE THE BLANKET.
3. AFTER VEGETATIVE ESTABLISHMENT, CHECK THE TREATED AREA PERIODICALLY.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE MAINTENANCE REQUIREMENTS

1. INSPECT ENTRANCE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER STORM EVENTS OR HEAVY USE.
2. RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
3. TOPDRESS WITH CLEAN STONE AS NEEDED.
4. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED IF THE WATER IS CONVEYED INTO A SEDIMENT TRAP OR BASIN.
5. REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.

ROGER WARD ENGINEERING INCORPORATED
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EROSION CONTROL NOTES

Designed By: GSB
Drawn By: GSB
Checked By: RW
Checked By: RW

REVISIONS:
1.
2.
3.
4.

NEW DENTIST OFFICE
@ McCORDSVILLE CONER SHOPPES
7473 NORTH CR 600 WEST
McCORDSVILLE, INDIANA

ROGER C. WARD
APPROVAL PENDING - NOT FOR CONSTRUCTION
REGISTERED PROFESSIONAL ENGINEER

BY:

DATE: 10-22-2021

SHEET
C107
OF
XX

JOB#: RUI.007

Indiana 811 Know what's below. Call before you dig.

GENERAL SPECIFICATIONS

EARTHWORK

1. SCOPE OF WORK

A. Extent: The work required under this section consists of all excavating, filling, rough grading and related items necessary to complete the work indicated on the drawings and described in the specifications. The Contractor shall notify in writing the owners and the Engineer of any changes, errors or omissions found on the plans or in the field before work is started or resumed.

1. In general, the items of work to be performed under this section shall include: clearing and grubbing, removal of trees and stumps (where required), protection of trees to remain, stripping and storage of topsoil, fill compaction and rough grading of entire site.

2. Excavated material that is suitable may be used for fills. All unsuitable material and all surplus excavated material not required shall be removed from the site. The location of dump and length of haul shall be the Contractor's responsibility.

3. Provide and place any additional fill material from off the site as may be necessary to produce the grades required. Fill obtained from off site shall be of kind and quality as specified for fills herein and the source approved by the Owner.

4. The Contractor shall accept the site as he finds it and shall remove all trash, rubbish and debris from the site prior to starting excavation.

B. Work not included: The following items of related work are specified and included in other sections of these specifications:

1. Excavation, grading and backfilling for utility lines
2. Storm drainage systems
3. Sanitary sewer systems
4. Streets and paving
5. Water supply system

2. BENCH MARKS

Maintain carefully all bench marks, monuments and other other reference points; if disturbed or destroyed, Contractor shall contact engineer. Replacement shall be at Contractor's expense.

3. REMOVAL OF TREES

A. Remove all trees and stumps from area to be occupied by road and surfaced areas. Removal of trees outside these areas shall only be done as noted on drawings or approved by the Owner.

B. All brush, stumps, wood and other refuse from the trees shall be removed to disposal areas off of the site. Disposal by burning shall not be permitted unless proper permits are obtained (where applicable). The location of on-site bury pits shall be approved by the owner and the Engineer if permitted.

4. PROTECTION OF TREES

A. General Protection: The Contractor shall be responsible for the protection of tops, trunks and roots of existing trees on the project site that are to remain. Existing trees subject to construction damage shall be boxed, fenced or otherwise protected before any work is started; do not stockpile within branch spread. Remove interfering branches without injury to trunks and cover scars with tree paint.

5. HANDLING OF TOPSOIL

A. Remove all organic material from the areas to be occupied by buildings, roads, walks and parking areas. Pile and store topsoil at a location where it will not interfere with construction operations. Topsoil shall be reasonably free from subsoil, debris, weeds, grass, stones, etc..

B. After completion of site grading and subsurface utility installation, top soil shall be replaced in areas designated on the erosion control plan for seeding and/or sod. Any remaining topsoil shall be used for finished grading around structures and landscaping areas.

6. DISPOSITION OF UTILITIES:

A. Rules and regulations governing the respective utilities shall be observed in executing all work under this section.

B. If active utilities are encountered but not shown shown on the drawings, the Engineer shall be advised before work is continued.

C. Inactive and abandoned utilities encountered in excavating and grading operations shall be reported to the Engineer. They shall be removed, plugged or capped as directed by the Utility Company or the Engineer.

D. It shall be the responsibility of each contractor to verify all existing utilities and conditions pertaining to his phase of the work. It shall also be the contractors responsibility to contact the owners of the various utilities before work is started.

7. SITE GRADING:

A. Grades: Contractor shall perform all cutting, filling, compacting of fills and rough grading required to bring entire project area to grade as shown on the drawings.

B. Rough Grading: the tolerance for paved areas shall not exceed 0.10 feet plus or minus above the established subgrade. All other areas shall not exceed 0.10 feet plus or minus the established grade. All banks and other breaks in grade shall be rounded at top and bottom.

C. Compaction Requirements:

1. All areas supporting footings and paved areas shall be compacted to at least 95% standard proctor density.

2. All fill below building slab, adjacent to foundations and over foundations shall be compacted to 93% standard proctor density.

8. EARTH WORK BALANCE

A. The Contractor shall confirm all earthwork quantities prior to start of construction. If an excess or shortage of earth is encountered, the Contractor shall confirm with the Owner and Engineer the requirements for stockpiling, removal or importing of earth.

B. Minor adjustments to the grades may be required to earthwork balances when minor excess material or shortages are encountered. It is recognized by the parties hereto that the calculations of the the Engineer in determining earthwork quantities shall be accomplished in accordance with the American Society of Civil Engineers Standards for such calculations. Further, that these calculations are subject to the interpretations of soil borings as the physical limits of the various soil types, the allowable variation in finish grade and compaction permitted the contractor, and that all of these parameters may cause either an excess or shortage of actual earthwork materials to complete the project. If such an actual minor excess or shortage of materials occurs, the contractor shall contact the Engineer to determine if adjustment can be made to correct the imbalance of earth.

9. TESTING

A. Contractor shall hire at Contractors expence an independent soil testing service to assure soil compaction with scope of testing to be approved by Engineer. Copies of test results shall be submitted to the Engineer.

SANITARY SEWER SYSTEMS

1. SCOPE OF WORK

A. The work under this section includes all sanitary sewers, manholes, cleanouts and related items including excavating and backfilling, necessary to complete the work shown in the drawings, starting five feet outside the building walls. The ends of sewers shall be tightly plugged or capped at the terminal points, adjacent to buildings, pending the connecting of all such lines to the building drain as specified in the plumbing and architectural drawings. One set of "approved" plans shall be on the job site at all times.

2. MATERIALS

A. Polyvinyl Chloride Pipe (PVC)

1. 8"-15" PVC pipe shall be SDR 35 and conform to ASTM D3034, with a minimum cell classification of 12454-B or 12454-C. Greater than 15" PVC pipe shall conform to ASTM F679, with a minimum cell classification of 12454-C.

2. All fittings and joints shall be compression type flexible gasketed joints, and manufactured and installed in accordance with the pipe manufacturer's specifications. No solvent cement joints shall be allowed. All fittings shall be heavy walled fittings.

3. Pipes shall have a minimum pipe stiffness of 46 psi when measured at 5% vertical ring deflection and tested in accordance with ASTM D 2412 and a minimum tensile strength 34.50 psi.

B. Ductile Iron Pipe

1. Ductile iron (DI) pipe must meet ASTM A-746 and ANSI/AWWA A21.51/C151 with exterior bituminous coating per ANSI/AWWA A21.51/C151 and ANSI/AWWA A21.10/C110. The interior surfaces of all pipe, fittings, and adapters shall be lined with factory applied Protecto 401 ceramic epoxy lining, or approved equal. Pipe must be marked per ASTM A 746.

2. Mechanical, push on or restrained joints shall be provided Flanged joints are not allowed for buried applications. Mechanical joints and accessories shall conform to AWWA C111/ANSI A21.11. The bolts and nuts shall be corrosion resistant high strength alloy steel. Push-on type joints shall conform to ANSI A21.11/AWWA C111. Fittings shall comply with ANISI Specification A21.10/AWWA C110. Restrained joints shall be manufactured in accordance with pipe manufacturers' requirements. Locking rings, tabs, inserts, or gaskets with inset steel grips may all be used for gravity sanitary sewer applications. Fittings shall be standardized for the type of pipe and joint specified, and shall comply with ANSI A21.10/AWWA C110.

C. Manholes

1. Precast reinforced concrete manhole sections and steps and concrete adjusting rings shall conform to ASTM C-478 latest revision. Exterior of manhole shall be waterproofed with Bismatic material. Manhole sections shall not be installed until at least five days after having been cast unless permitted in writing by the Department.

2. Castings shall be of uniform quality, free from blow holes, porosity, hard spots, shrinkage distortion or other defects. They shall be smooth and well-cleaned by shot-blasting or by some other approved method. They shall be coated with asphalt paint which shall result in a smooth coating, tough and tenacious when cold, not tacky or brittle. They shall be gray iron meeting ASTM A-48 latest revision. Manhole covers for sanitary sewer shall be Neenah Type R-1077-A w/R-1712-B-SP Frame w/Self-Sealing application.

3. Joints - Manhole sections shall be joined with a rubber gasket per ASTM C 443, and 1/2" diameter butyl rubber rope sealant per ASTM C 990.

4. Manholes shall include steps. Manhole steps shall conform to the requirements of ASTM C 478 and be manufactured using steel encased in polypropylene plastic. Steps shall be factory installed when the manhole is manufactured.

5. Manholes shall be bedded on a granular foundation. The granular foundation shall be compacted with vibratory tamps.

6. Manholes adjusting rings shall only be concrete. They shall conform to ASTM C 478. Minimum thickness of concrete ring shall be four (4) inches.

7. Castings shall be Neenah R-1713-B-SP or East Jordan 1022-1AGSMD. All castings shall have a machined bearing surface with Type F concealed pickholes. The words "Sanitary Sewer" and "City of Indianapolis" must be cast in recess letters two inches in height onto solid lid covers. Castings shall be manufactured in accordance with ASTM A 48 - Class 35B, and have a minimum tensile strength of 35,000 psi.

3. APPLICATION

A. Permits and Codes - The intent of this section of the specifications is that the contractor's bid on the work covered herein shall be based upon the drawings and specifications but that the work shall comply with all applicable codes and regulations as amended by any waivers. Contractor shall furnish all bonds necessary to get permits for cuts and connections to existing sewers. The Contractor shall be responsible for obtaining or verifying all permits for all or portions of this project prior to starting construction. The Contractor shall notify the local or county inspector or utility superintendent 48 hours prior to commencement of sanitary construction.

B. Local Standards - The term "local standards" as used herein means the standards of design and construction of the respective municipal department or utility company.

C. Existing Improvements - Maintain in operating condition all active utilities, sewers and other drains encountered in the sewer installation. Repair to the satisfaction of the owner any damage to existing active improvements.

D. Workmanship - To conform to all local, state and national codes and to be approved by all local and state agencies having jurisdiction.

E. Trenching - Lay all pipe in open trenches, except when the local authority gives written permission for tunneling or jacking of pipe. Open the trench sufficiently ahead of pipe-laying to reveal any obstructions The width of the trench shall be the greater of the outside pipe diameter plus 16 inches or 12 inches plus 1.25 times outside diameter. Sheet and brace the trench as necessary to protect workmen and adjacent structures. All trenching to comply with Occupational Safety and Health Administration Standards. Open trenches shall be properly protected and/or barricaded when left unattended. Keep trenches free from water while construction is in progress. Under no circumstances shall pipe or appurtenances be laid in standing water. Conduct the discharge from trench dewatering to drains or natural drainage channels.

F. Special Supports - Whenever, in the opinion of the Engineer, the soil at or below the pipe grade is unsuitable for supporting sewers and appurtenances specified in this section, such special support, in addition to those shown or specified, shall be provided as the Engineer may direct, and the contract will be adjusted.

G. Backfilling - No. 8 crushed stone or No. 8 fractured faced aggregate shall be used. Bedding material shall be placed and compacted prior to laying the pipe. Haunching material shall be shovel sliced or otherwise carefully placed and "walked" or hand tamped to the springline to ensure compaction and complete filling of all voids. The initial backfill shall be added in six inch lifts "walked" in for compaction.

Material	Pipe size (in)	Depth Below Barrel, (in)	Depth Above Top of Pipe, (in)
Flexible	6 or less	4	4
Pipe	8 to 15	4	12
	18 and larger	8	12

Material	Pipe size (in)	Depth Below Barrel, (in)	Depth Above Top of Pipe, (in)
Rigid	8 to 16	4	6
Pipe	18 and larger	8	6

Final Backfill - For excavation within the right-of-ways, final backfill requirements shall be in accordance with the Department of Metropolitan Developments "Regulations For Cuts Within The Public Right-of-Way."

All other backfill requirements are as follows: Within 5' of pavement, curbs, gutters, or similar structures trenches shall be backfilled with Structural "B-Borrow" for structural installations per INDOT Standard Specifications - Section 211. Backfill shall be compacted to achieve not less than 95% Standard Proctor Dry Density per INDOT Section 203.23.

Backfill shall be added and compacted in 12 in. lifts by mechanical tampers. Maximum compaction depth shall not exceed 6 ft.

Backfill outside of 5' of edge of pavement, curbs, gutter or similar structures shall be backfilled with clean fill material free of rocks larger than 6 in. in diameter, frozen lumps of soil, wood, or other extaneous material.

H. Flow Channels - The flow channels within manholes shall be an integral part of the precast base. The channels shall be shaped and formed for a clean transition with proper hydraulics to allow the smooth conveyance of flow through the manhole. The bench wall shall be formed to the crown of the inlet and outlet pipes to form a "U" shaped channel. The bench wall shall slope back from the crown at 1/2 inch per foot to the manhole wall. No brick, rock or sand fillers will be allowed.

I. Infiltration - The contractor shall furnish necessary equipment to test sewers for infiltration. Infiltration rates shall not exceed the Local Standards. All sanitary sewer lines upon completion will be required to pass a low pressure air test, unless otherwise directed by the City Engineer. Said test shall be conducted according to NCPI Standard Method, and shall be witnessed by an inspector authorized by the City Engineer. Infiltration under test shall not exceed 100 gallons per inch of inside diameter of sewer pipe per mile of sewer in 24 hours and is inclusive of all apurtenances within the section being tested such as manholes, house connections, etc. Any portions not passing said tests for acceptance shall be repaired or replaced, including re-excavation and backfill, at the Contractor's expense.

J. Flushing Sewers - Flush all sanitary sewers except building sewers with water to obtain free flow through each line. Remove all silt and trash from appurtenances just prior to acceptance of work.

K. Plastic Sewer Pipe Installation - Plastic sewer pipe shall be installed in accordance with ASTM D2321 per latest revision, and no plastic pipe shall exceed an 11 point mandrel test deflection of 5%. All sewer mains shall be lamped at the time the mandrel test is conducted. All mains shall be true to alignment and grade.

L. Storm Water Connections - No roof drains, footing drains and/or surface water drains may be connected to the sanitary sewer systems, including temporary connections during construction.

M. Waterline Crossing - Water and sewer line crossings and separations shall be in accordance with Ten States Standards and local and state codes. Waterlines and sanitary sewers shall maintain a minimum of 10 foot horizontal separation and a minimum 18 inches of clearance between pipes at crossings. Otherwise, sanitary sewer within 10 feet of waterlines shall be constructed of water works grade Ductile Iron Pipe with mechanical joints and fittings. One length of sewer pipe should be centered at the waterline crossing so that no joint is closer than 10 feet to the waterline.

N. Utilities - It shall be the responsibility of each contractor to verify all existing utilities and conditions pertaining to his phase of the work. It shall also be the contractors responsibility to contact the owners of the various utilities before work is started. The contractor shall notify in writing the owners and the engineer of any changes, errors or omissions found on these plans or in the field before work is started or resumed.

O. Service Laterals - Individual building service lines shall be 6 inches in diameter and of PVC material. Material requirements are in the table below.

Material	Designation	Classification
PVC	ASTM D 3034	SDR35 CELL CLASS 12454 OR 12364
PVC	ASTM D 2241	SDR32.5 CELL CLASS 12454
PVC	ASTM D 2466	Schedule 40 CELL CLASS 12454
PVC	ASTM D 2467	Schedule 80 CELL CLASS 12454

Service lines shall be connected to the main sewer by a wye at locations generally shown within these plans. Service lines shall be extended to a distance of 5 feet beyond the right-of-way line and within 5'-8' of the existing ground surface. The ends shall be plugged and sealed with a water tight cap. Sewer service lines shall be marked with a 2"x4" painted green and extending from the lateral end to 3' above grade.

P. New Sanitary Sewer Main Construction - Contractor shall record length and dimensions of each service line stub from nearest downstream manhole measure along the sanitary sewer main. The locations of manholes and service lines along with any other construction changes are to be incorporated on the original construction drawings as "as-built" locations and submitted to the Engineer as soon after completion of construction as possible, not to exceed 30 days.

Q. Gravity Sanitary Sewer Testing - All sanitary sewers 24 inches and less shall be air tested by means of a low pressure air test per Section 602.03 of the Citizen's Energy Group's Sanitary Sewer Standards. All sewers larger than 24 inches shall be joint tested per Section 602.04.

All sewers 24 inches and less shall be tested by means of a low-pressure air test to detect damaged piping and/or improper jointing. Testing shall be done per ASTM F 1417 flexible and semi-rigid pipe and ASTM C 924 for RCP.

All sewers greater than 24 inches shall be joint tested using air or water under low pressure. All joints shall be tested. Testing shall be per ASTM C 1103 and per Citizen's Energy Group's Sanitary Sewer Standards and Specifications.

R. Force Main Testing - All force mains for lift stations and common force mains in low pressure systems shall be tested for leakage by a Hydrostatic Leak Test per Section 603.03.

The hydrostatic leak test shall be done in accordance with AWWA standards based on force main material, in accordance with ASTM E 1003 and per Section 603.03.

S. Manhole Testing - All manholes shall be tested for infiltration by means of a negative air (vacuum) pressure test per Section 604.04 of the City of Indianapolis' Sanitary Specifications.

All manholes shall be tested for infiltration by means of a Negative Air (Vacuum) Pressure Test. Testing shall be done per ASTM C 1244.

All internal chimney seals shall be tested using a leakage test. Testing shall be performed per Section 604.05.

STORM SEWER SYSTEMS

1. SCOPE OF WORK

The work under this section includes all storm sewers, storm water inlets, and related items, including excavating and backfilling, necessary to complete the work shown on the drawings. All work and materials shall meet the local governing authorities specifications.

2. MATERIALS

A. Storm Sewers

1. Reinforced concrete sewer pipe shall conform to ASTM C-76 latest revision, with joints conforming to ASTM C-443 latest revision when storm pipe is continuously submerged in water.

2. Aluminized type 2 corrugated steel pipe shall be manufactured in accordance with AASHTO M36 (type I with 2 2/3" x 1/2" corrugations for 12" and 15" diameters; type IR with 3/4" x 3/4" x 7 1/2" corrugations for 18" diameter and larger). The pipe shall be formed from an aluminized steel type 2 coil that conforms to AASHTO M274. The minimum gage thickness of the pipe shall be as follows:

Diameter	Gage
12" - 36"	16
42" - 48"	14
54" - 84"	12

3. High density polyethylene pipe shall perform to AASHTO M252 and M294 Type S specifications, latest revision, and shall have material specifications conforming to ASTM D1248 or D3350, latest revision.

4. Polyvinyl Chloride (PVC) profile wall gravity flow storm sewer pipe shall be the integral wall bell and spigot type with elastomeric seal joints and smooth inner walls in accordance with AASHTO M304. A minimum Cell Class of 12454C or 12364C as set forth by ASTM D 1784 shall be required.

Smoothwall PVC pip shall be in accordance with ASTM F 679 or AASHTO M 278 for the specified sizes, and shall have a minimum Cell Class of 12364C for pipes meeting specification ASTM F 679, or 12454C for pipes meeting specification AASHTO M 278. Cell class properties shall be set forth by ASTM D 1784.

B. Manholes

1. Precast reinforced concrete manhole sections and steps shall conform to ASTM C-478 latest revision.

2. Casting shall be of uniform quality, free from blow holes, porosity, hard spots, shrinkage distortion or other defects. They shall be smooth and well cleaned by shot -blasting or by some other approved method. They shall be coated with asphalt paint which shall result in a smooth coating, tough and tenacious when cold, not tacky or brittle. They shall be gray iron meeting ASTM A-48 latest revision.

3. Joints - Manhole sections shall be jointed with rubber type gaskets. The rubber type gaskets shall meet ASTM C-443 latest revision. When manhole and storm pipe are continuously in water.

C. SUBDRAINS

1. Perforated plastic pipe subdrains shall conform to ASTM F-405, AASHTO M-252 (4" to 10" pipe).

3. APPLICATION

A. Permits and Codes - The intent of this section of the specifications is that the contractor's bid on the work covered herein shall be based upon the drawings and specifications but that the work shall comply with all applicable codes and regulations as amended by any waivers. Contractor shall furnish all bonds necessary to get permits for cuts and connections to existing sewers. Contractor shall notify the County Surveyor's Office a minimum of 72 hours prior to the commencement of storm sewer construction.

B. Local Standards - the term "Local Standards" as used herein means the standards of design and construction of the respective municipal department or utility company.

C. Existing Improvements - Maintain in operating condition all active utilities, sewers and other drains encountered in the sewer installation. Repair to the satisfaction of the owner any damage to existing active improvements.

D. Workmanship - To conform to all local, state and national codes and to be approved by all local and state agencies having jurisdiction.

E. Trenching - Lay all pipe in open trenches, except when the local authority gives written permission for tunneling. Open the trench sufficient ahead of pipe laying to reveal any obstructions. The width of the trench shall be the inside pipe diameter plus 24 inches for 12 inches above the pipe. Sheet and brace trench as necessary to protect workmen and adjacent structures. All trenching to comply with Occupational Safety and Health Administration Standards. Keep trenches free from water while construction is in progress. Under no circumstances lay pipe or appurtenances in standing water. Conduct the discharge from trench dewatering to drains or natural drainage channels.

F. Special Supports - Whenever in the opinion of the Engineer the soil at or below the pipe grade is unsuitable for supporting sewers and appurtenances specified in this section, such special support, in addition to those shown or specified, shall be provided as the Engineer may direct, and the contract will be adjusted.

G. Backfilling - for a depth of at least 12 inches above the top of the pipe, backfill with earth or granular material free from large stones, rock fragments, roots or sod. Tamp this backfill thoroughly, taking care not to disturb the pipe. For the remaining trench depth, backfill with earth or granular material containing stones or rocks not larger than 4 inches. Backfill under and within 5' of paved areas shall be granular material only and shall conform to local standards - thoroughly compacted by approved methods.

H. Manhole Inverts - Construct manhole flow channels of concrete sewer pipe or brick, smoothly finished and of semicircular section conforming to the inside diameter of the connecting sewers. Make changes in size or grade gradually and changes in direction by true curves. Provide such channels for all connecting sewers at each manhole.

I. Subdrains - All subdrains shall be of the size shown on the plans and shall be constructed to the grades shown. All drains constructed off-site as part of the outlet drain will be located as shown.

J. Utilities - It shall be the responsibility of each contractor to verify all existing utilities and conditions pertaining to his phase of the work. It shall also be the contractors responsibility to contact the owners of the various utilities before work is started. The contractor shall notify in writing the owners or the engineer of any changes, errors or omissions found on these plans or in the field before work is started or resumed.

STREETS AND PAVING

1. SCOPE OF WORK

A. The work required under this section includes all concrete and bituminous paving and related items necessary to complete the work indicated on drawings and described in the specifications, including but not limited to:

All streets, parking areas in contract limits
Curbs and gutters.
Sidewalks and concrete slabs, exterior steps.

2. MATERIALS

A. Concrete - Concrete shall be ready-mixed concrete and shall be a mix of proportioned fine and coarse aggregates with Portland cement and water. Minimum cement content shall be 6 bags per cubic yard of concrete and maximum water content shall be 5.5 U.S. gallons per sack of cement, including moisture in the aggregate. Slump for normal weight concrete shall be a maximum of 4 inches and a minimum of 2 inches. The slump of machine place concrete shall be no less than 1-1/4 inches nor more than 3 inches. Standard test ASTM C-143 shall be used to measure slump. Compressive strength of concrete at 28 days shall be 4000 psi. All exterior concrete shall have air entrainment of 5% to 8% by volume per ASTM C-260. Retempering delivered concrete will not be allowed. Concrete shall be composed of:

1. Portland cement - Conforming to ASTM C-150, Type IA or Type IIIA.

2. Aggregates: Conforming to ASTM C-33

3. Water - Shall be clear and free from injurious amounts of oils, acids, alkalis, organic materials or other deleterious substances.

B. Welded Steel Wire Fabric - Where required for concrete reinforcement shall conform to ASTM A185.

C. Premoulded Joint Filler - Shall be of non -extruding type meeting ASTM D-544 except that premoulded joint filler used in concrete walk construction may be either non-extruding or resilient.

D. Bituminous Pavement Materials - All materials proposed for the construction of bituminous pavements shall comply with the Indiana Department of Transportation specifications, per latest revision.

E. Compacted Aggregate Subbase: Shall be crushed stone or gravel. Crushed gravel shall be a minimum of 35% crushed material. Chert shall be limited to a maximum of 8% of the total. Material shall be free from an excess of flat, elongated, thinly laminated, soft or disintegrated pieces; and shall be free from fragments coated with dirt. Compacted aggregate shall be graded as follows:

SIEVE SIZE	% PASSING
1-1/2"	100
1"	80-100
3/4"	70-90
1/2"	55-80
#4	35-60
#8	25-50
#30	12-30
#200	5-10

**COMMERCIAL GRADE #53 AGGREGATE MAY BE USED IN PARKING GARAGE.

3. APPLICATION

A. Grading - Do any necessary grading in addition to that performed in accordance with Earthwork Section, to bring subgrades, after final compaction, to the required grades and sections for site improvement.

B. Preparation of Subgrade - Remove spongy and otherwise unsuitable material and replace with stable material. No traffic will be allowed on prepared subgrade prior to paving.

C. Compaction of Subgrade - The first 6 inches below the subgrade shall be compacted to at least 100% of the maximum dry density as determined by the provisions of AASHTO T-99. Water shall be prevented from standing on the compacted subgrade.

D. Compacted Aggregate Subbase - the thickness shown on the drawings is the minimum thickness of the fully compacted subbase. Compaction shall be accomplished by rolling with a smooth wheeled roller weighing 8 to 10 tons. Compact to 95% standard proctor density (ASTM D698) Along curbs, headers and walls and at all placed not accessible to the roller, the aggregate material shall be tamped with mechanical tampers or with approved hand tampers.

E. Bituminous Pavement - Hot asphalt concrete pavement shall be as specified in Section 400-410 of the Indiana Department of Transportation Specifications latest revisions. Paving will not be permitted during unfavorable weather or when the temperature is not in compliance with section 401.05 of the INDOT Specifications.

F. Utility Structures - Check for correct elevation of all manhole covers, valve boxes and similar structures located within areas to be paved, and make, or have made, any necessary adjustments in such structures.

G. Placing Concrete

1. Subgrade - Place concrete only on a moist, compacted subgrade or base free from loose material. Place no concrete on a muddy or frozen subgrade.

2. Forms - All forms shall be free from warp, tight enough to prevent leakage and substantial enough to maintain their shape and position without springing or settling, when concrete is placed. Forms shall be clean and smooth and coated with form release before placement of concrete.

3. Placing Concrete - Concrete shall be deposited so as to require as little rehandling as practicable. When concrete is to be placed at an atmospheric temperature of 35 degrees F. or less, paragraph 702.10 of the Indiana Department of Transportation Specifications latest revision shall be followed.

H. Concrete Curb

1. Expansion Joints - Shall be 1/2 inch thick premoulded at ends of all returns and at a maximum spacing of 100 feet.

2. Contraction Joints - Unless otherwise provided, contraction joints shall be sawed joints spaced 20 feet on center.

3. Finish - Tamp and screed concrete as soon as placed, and fill any honey combed places. Finish square corners to 1/4" radius and other corners to radii shown.

I. Concrete Walks and Exterior Steps

1. Slopes - Provide 1/4 inch per foot cross slope. Make adjustments in slopes at walk intersections as necessary to provide proper drainage.

2. Dimensions - Walks and steps shall be one course construction and of widths and details shown on the drawings.

3. Finish - Screed concrete and trowel with a steel trowel to a hard dense surface after surface water has disappeared. Apply medium broom finish and scribe control joints at 5 foot spacing. Provide 1/2" expansion joints where sidewalks intersect, and at a maximum spacing of 48 feet between expansion joints.

J. Curing Concrete - Except as otherwise specified, cure all concrete by one of the methods described in Section 501.17 of the Indiana Department of Transportation Specifications, latest revision.

UTILITIES

1. WATER

A. All water mains shall be installed and tested in accordance with local standards and requirements.

2. GAS

Gas mains shown in the plans are for information only. The local gas utility is responsible for final design and installation of new gas mains.

3. OTHER UTILITIES

Electric, Telephone, and CATV lines shown in the plans are for information only. The local utility companies are responsible for final design and installation of their respective utility lines.

NOTE:
MINIMUM COVER OVER TOP OF ALL WATERMAINS TO BE 54" FROM FINISH GRADE.

Indiana 811 Know what's below. Call before you dig.

ROGER WARD ENGINEERING INCORPORATED
CIVIL ENGINEERS - LAND PLANNERS - DEVELOPMENT CONSULTANTS
6555 CARROLLTON AVENUE
INDIANAPOLIS, INDIANA 46220
(317) 251-1738 (FAX) 251-1923
www.rw-engineering.com

REVISIONS:
1. –
2. –
3. –
4. –

Designed By: GSB
Drawn By: GSB
Checked By: RW
Checked By: RW

NEW DENTIST OFFICE
@ McCORDSVILLE CONER SHOPPES
7473 NORTH CR 600 WEST
McCORDSVILLE, INDIANA

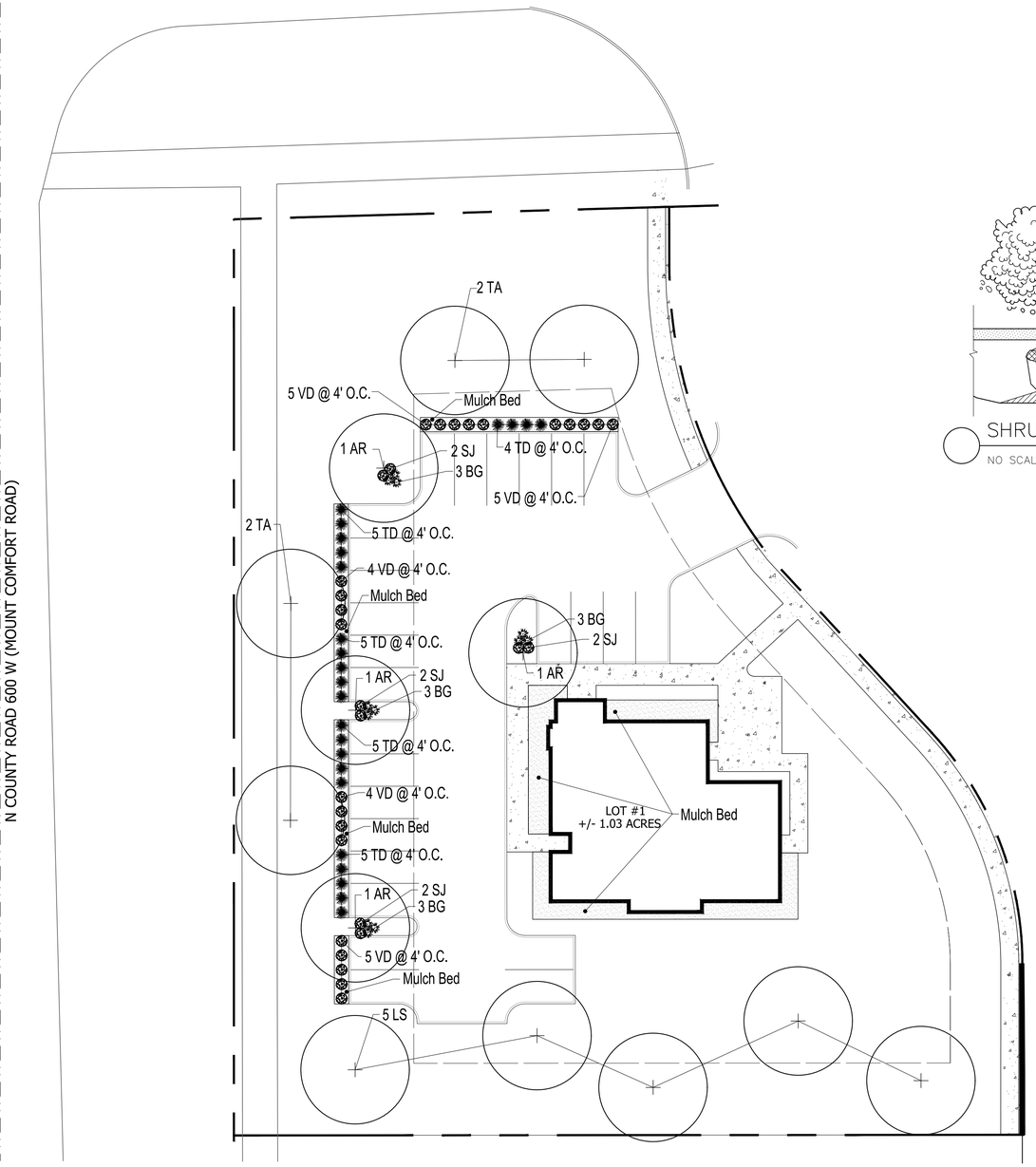
ROGER C. WARD APPROVAL PENDING - NOT FOR CONSTRUCTION REGISTERED PROFESSIONAL ENGINEER

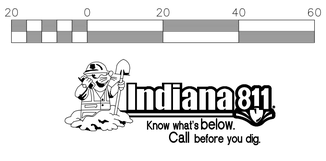
BY:

DATE: 10-22-2021

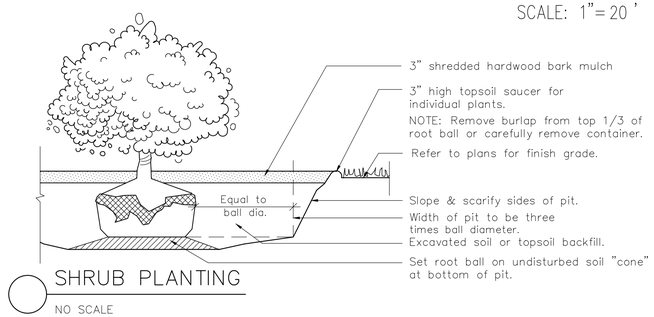
SHEET C108 OF XX

JOB#: RUI.007





ASSUMED NORTH
SCALE: 1"= 20 '



SHRUB PLANTING
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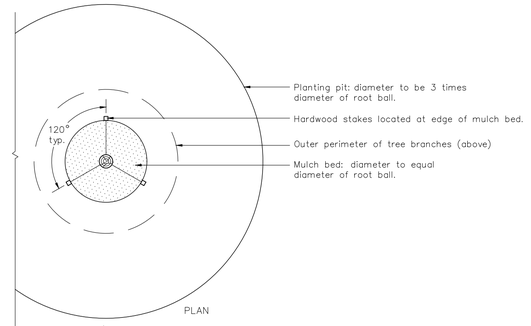
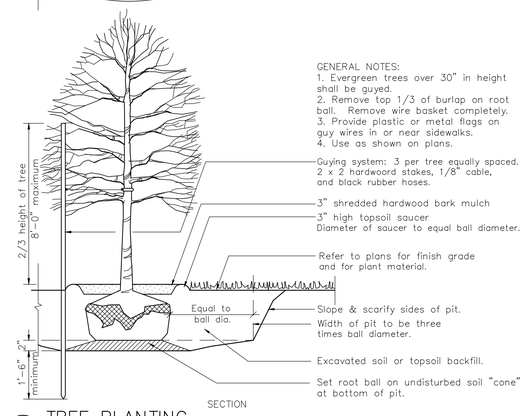


PLAN



SECTION

TREE PLANTING
NO SCALE

LANDSCAPE NOTES

CONTRACTOR SHALL VERIFY ALL UTILITIES ON SITE/CIVIL PLANS AND IN THE FIELD PRIOR OPERATIONS AND ADJUST PLANT LOCATIONS, IF NECESSARY TO AVOID CONFLICTS.

REFER TO THE EROSION CONTROL PLAN FOR ALL LAWN AREA TREATMENTS.

INDICATES MULCH BED

PLANTING CALCULATION

PARKING LOT INTERIOR

PARKING PAVEMENT AREA	= 9,986 S.F.
INTERIOR AREA REQUIRED	= 9,986 x 5% (0.05) = 499 S.F.
INTERIOR AREA PROVIDED	= 916 S.F. / 9,986 =9.17% (0.0917)
TREES REQUIRED 9,986/2,400	= 4.16
TREES PROVIDED	= 4
SHRUBS REQUIRED 9,986/500	= 19.97
SHRUBS PROVIDED	= 20

SUPPLEMENTAL TREE PLANTINGS

LOT AREA	= 1.03 ACRES @ 5 TREES/ACRE
TREES REQUIRED	= 5
TREES PROVIDED	= 5

LANDSCAPE NOTES

All species of plant materials and substitutions thereof are subject to acceptance by the Town of McCordsville Planning Department approval and of the Owner(s) or a representative of the Owner(s).
All plant materials are to be warranted for a period of no less than one year from final acceptance by the Owner(s) or a representative of the Owner(s).
All plant material is to be planted in a manner that ensures its survival. Any environmental or other type of situation that is noted by the landscape Contractor that could potentially injure the plant or shorten its longevity is to be made known to the Owner(s) and potential substitutions or corrections to the situation can be made at no expense to the Contractor.
All materials failing the one year warantee period are to be replaced at the expense of the Landscape Contractor.
Any deviation from responsible landscape practices and the Town of McCordsville Zoning Ordinance will result in the immediate termination of the Landscape Contract and the Contractor will pay all costs associated with the corrections.
All plant material is to come from respectable sources within 100 miles of the site on which it is being installed. If no source for a plant species is available within this area, the project Landscape Architect/Engineer is to be notified immediately to make a determination of possible options.
All plant material is subject to approval by the project Landscape Architect/Engineer prior to installation and may be rejected for reasons of health, aesthetics, size or other reasonable causes.
The Landscape Contractor is responsible for the timely installation of all material in his contract. Should there be a delay due to weather or other unforeseeable, natural circumstances, the timeline will be adjusted.

LANDSCAPE SPECIFICATIONS

LANDSCAPE SPECIFICATIONS: These specifications cover the furnishing of labor, plants, equipment, and materials to perform landscape operations in connection with this construction project at the locations shown on the landscape drawing.
LANDSCAPE MATERIALS:
FERTILIZER: Granular non-burning product composed of not less than 50% organic slow acting, guaranteed analysis professional fertilizer, 20% nitrogen, 10% phosphoric acid, and 5% potash by weight or similarly approved composition.
PLANTING BACKFILL SOIL: Backfill plant pits with the following topsoil mixture: 1 part topsoil, 1 part soil amendment and 1 part soil from excavation. Topsoil: ASTM D5268, PH Range of 5.5 to 7, MIN. 4 percent organic material, free of stones 1 inch and larger. Soil Amendment: Sphagnum peat moss or EPA rated class IV compost. Prepare planting backfill soil on site. Notify landscape architect one week prior to commencing planting to arrange site inspection to conform sufficient quantities of imported topsoil, compost and fertilizer are on site for planting operations.
PLANT MATERIALS: Provide trees and shrubs as indicated. Comply with sizing and grading standards of "American Standard for Nursery Stock". Provide only sound, healthy vigorous plants free from defects, disfiguring knots, sun scald injuries, frost cracks, plant diseases, inspects or any other form of disease or infestation. All plants shall have fully developed form without voids or open spaces.
PLANTING BED MULCH: 3 inches of Premium grade shredded hardwood mulch (Dark Tan in color) over pre-emergent weed control granules.
PROJECT EXECUTION:
SUBSURFACE UTILITIES: Contractor shall determine utility line locations prior to commencing work. Any conflicts between utility locations, excavation and/or landscape operations shall be brought to Owner's attention prior to commencing excavation and/or grading work. Contractor assumes responsibility for any utility damage resulting from landscape operations. CONTRACTOR SHALL NOTIFY UTILITY LOCATE SERVICE (1-800-382-5544) A MINIMUM OF TWO WORKING DAYS PRIOR TO EXCAVATION.
PLANTING EXCAVATION: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage or obstructions, notify owner before planting. See planting details for planting, pruning and staking requirements. All plant beds including tree rings found in lawn areas shall have a 4" spade edge, NO EDGING.
SODDED LAWN: Complete all other landscape plantings, mulching and staking prior to placing sodded lawn areas. Apply fertilizer at a rate equal to 4 pounds of actual nitrogen per 1,000 square feet. Spread topsoil over lawn areas to a depth of two inches prior to seed bed preparation. Cultivate soil to a depth of three inches prior to sodding. Soil bed shall be in a firm but uncompacted condition with a relatively fine texture at time of sod placement. All sod shall be laid within 48-hours of cutting. In no case shall sod be laid on frozen ground. Apply The Cisco Companies' EXECU-TURF TUFF TURF BLEND, or equivalent, clay backed sod with no gaps between joints. All pavement edges shall be trimmed to compensate for the thickness of the soil of the sod. The Contractor shall maintain sodded lawn for a period of 60 days beyond final acceptance by mowing and watering as required to maintain vigorous growth during establishment period.
SEEDED LAWN: Complete all other landscape plantings, mulching and staking prior to seeding lawn areas. Apply fertilizer at a rate equal to 4 pounds of actual nitrogen per 1,000 square feet. Spread topsoil over lawn areas to a depth of two inches prior to seed bed preparation. Cultivate soil to a depth of three inches prior to seeding. Seed bed shall be in a firm but uncompacted condition with a relatively fine texture at time of seeding. Apply The Cisco Companies' EXECU-TURF TUFF TURF BLEND, or equivalent, at the minimum rate of 8 pounds per 1,000 square feet. Spread weed and seed free straw uniformly over seeded areas and secure to place with emulsified tackifier. Contractor shall maintain seeded lawn for a period of 60 days beyond final acceptance by mowing and watering as required to maintain vigorous growth during establishment period.
PROJECT WARRANTY: Contractor shall warrant trees, shrubs, and plants for a period of one year after date of substantial completion against defects including death and unsatisfactory growth, except for defects resulting from neglect by the Owner, abuse or damage by others, or unusual phenomena or incidents which are beyond installer's control. Remove and replace trees, shrubs or other plants found to be dead or in unhealthy condition during warranty period. Replace trees and shrubs which are in doubtful condition at end of warranty period.

PLANTING SCHEDULE

Key	Common Name	Size	Qty.	Botanical Name	Cond.
AR	ARMSTRONG RED MAPLE	2-1/2" cal.	4	ACER RUBRUM 'ARMSTRONG'	B & B
LS	SWEETGUM	2-1/2" cal.	5	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'	B & B
TA	AMERICAN SENTRY AMER. BASSWOOD	2-1/2" cal.	4	TILIA AMERICIANA 'MCKSENTRY'	B & B
TD	DENSE SPREADING YEW	24-30"	24	TAXUS x MEDIA 'DENSIFORMIS'	B & B
VD	BLUE MUFFIN VIBURNUM	24-30"	23	VIBURNUM DENTATUM 'CHRISTOM'	B & B
BG	GREEN GEM BOXWOOD	18-24"	12	BOXWOOD x KOREANA 'GREEN GEM'	B & B
SJ	LITTLE PRINCESS SPIREA	18-24"	8	SPIREA JAPONICA 'LITTLE PRINCESS'	B & B

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INDIANAPOLIS, INDIANA 46220
(317) 251-1738 (FAX) 251-1923
www.rw-engineering.com

LANDSCAPE PLAN

DRAWN BY: pnh
DATE: 10/15/2021
FILE NAME: RUI/007/DWG/L101
XREF:

REVISIONS:
1 -
2 -
3 -
4 -

NEW DENTIST OFFICE
@ MCCORDSVILLE CORNER SHOPPES
7473 NORTH CR 600 WEST
MCCORDSVILLE, INDIANA

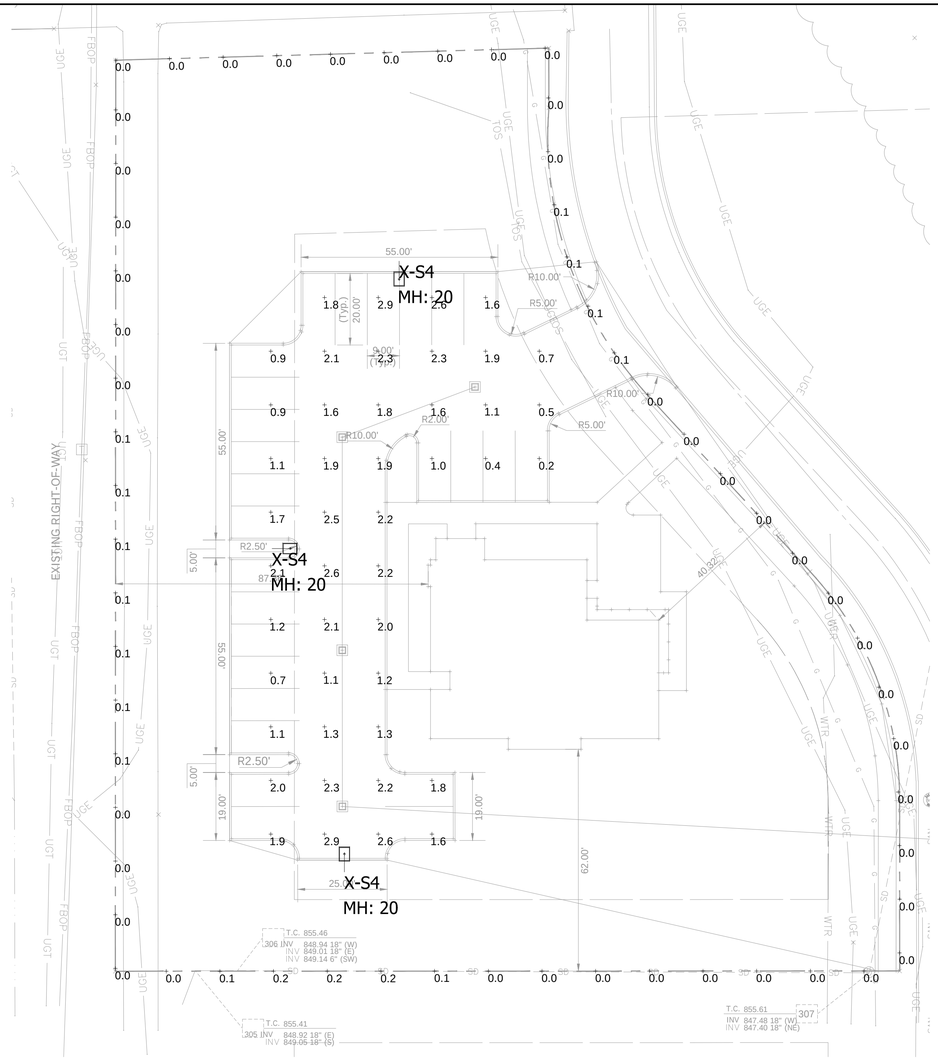
NICHOLAS TERRY HALL
REGISTERED LANDSCAPE ARCHITECT
STATE OF INDIANA
APPROVED PENDING NOT FOR CONSTRUCTION

BY:

DATE: 10-15-2021

SHEET
L101
OF
1

JOB#: RUI.007



Luminaire Schedule							
Symbol	Qty	Label	Arrangement	Lum. Lumens	LLF	Lum. Watts	Description
	3	X-S4	SINGLE	9308	0.900	62.5	MRS-LED-09L-SIL-FT-50-70CRI

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Paved Areas & Drive	Illuminance	Fc	1.68	2.9	0.2	8.40	14.50
Property Line	Illuminance	Fc	0.03	0.2	0.0	N.A.	N.A.

LIGHTING NOTES:

- Mounting Height = 20'
- Light Loss Factor = 0.90
- Footcandle Values Calculated @ Grade
- Reflectance Values - 80/50/20 (office spaces)
  50/30/20 (warehouse areas)

National Lighting Vendor:

For pricing and technical assistance contact:
Russ Miller of CBMC INC, tel# 317-697-7510,
rmiller@cbmcinc.com

CBMC · LIGHTING SOLUTIONS
5855 KOPETSKY DR. SUITE G. | INDIANAPOLIS, IN 46217
317-780-8350| WWW.CBMCINC.COM

SEE MORE

This lighting pattern represents illumination levels calculated from laboratory data taken under controlled conditions in accordance with IESNA approved methods. Actual performance of any manufacturer's luminaire may vary due to variation in electrical voltage, tolerance in lamps and LED lumen package, location adjustments, and other variable field conditions.

Contractor to check and verify all dimensions on site before commencing any work shown.

McCordsville Dentist Site

SITE LAYOUT

Scale:	1" = 20'	Drawing No:	LP1
Date:	10/21/21	Project No:	CB19496-SITE
Drawn By:	SJM		

-

McCORDSVILLE, INDIANA

TOWN STANDARDS

DIRECTIONS FOR USE

1.) The entire set of full size drawings shall be attached to the construction drawings and shall be considered part thereto. A partial set may be used for small projects when whole sections are not applicable. Approval of use of a partial set will be made by the Town Engineer at the time of approval of the construction drawings.

2.) Details prepared by outside sources shall not be included in the construction drawings when the said drawings cover work which is covered by McCordsville Standards.

3.) Individual McCordsville Standards that do not apply may be crossed out by the design engineer through placement of a single large X over the detail. Minor reference notations may be placed adjacent to individual standard titles for coordination. However, the standards themselves shall not be modified in any way.

4.) Details prepared by outside sources covering work which is not covered by the McCordsville Standards are the sole responsibility of the design engineer and shall be placed on sheets other than the McCordsville Standards.

GENERAL NOTES

1.) Contractor shall verify the exact location of all existing utilities at least 48 hours prior to any construction or excavation. All utilities shall be adequately supported to minimize damage. The contractor shall be responsible for repairing damaged utilities to the satisfaction of the Town of McCordsville and the owner of the utility.

2.) All benchmarks and elevations shall be from NAD 1983 (Conus) Datum. All coordinates shall conform with the Hancock County GIS standard.

3.) Wherever proprietary equipment is specified, all proposals for substitution shall be submitted in writing to the Town Engineer and shall be subject to the findings of the Town Engineer and may be appealed to the Public Works Committee.

4.) Whenever trench opening encroaches within 5 feet of an existing or proposed street or sidewalk, "B"-Borrow compacted in accordance with the most recent INDOT standard specifications shall be required. Approved backfill may be used under proposed sidewalks provided sidewalks are constructed six months after backfilling of the trench.

5.) Installation of or provisions for installation of all underground utilities (including service laterals) to be placed under pavement areas shall be established prior to the construction of pavements including lime stabilization.

HOLEY MOLEY SAYS

"DIG SAFELY"

"IT'S THE LAW"
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
CALL TOLL FREE
PER INDIANA STATE LAW IC8-1-26,
IT IS AGAINST THE LAW TO EXCAVATE
WITHOUT NOTIFYING THE UNDERGROUND
LOCATION SERVICE TWO (2) WORKING DAYS
BEFORE COMMENCING WORK.

REVISION LOG

SHEET NO.	SHEET DESCRIPTION	ISSUED	REVISED	REVISED	REVISED	REVISED
SHEET 1	DIRECTIONS FOR USE, GENERAL NOTES & REVISION LOG	06/14/05				
SHEET 2	RIGHT-OF-WAY SECTIONS & PAVEMENT SPECIFICATIONS	06/14/05				
SHEET 3	RIGHT-OF-WAY DETAILS	06/14/05				
SHEET 4	UTILITY LOCATION GUIDELINES	06/14/05				
SHEET 5	DRIVE WAYS, SIDEWALKS, AND HANDICAP RAMPS	06/14/05				
SHEET 6	STORM SEWER STRUCTURE DETAILS	06/14/05				
SHEET 7	STORM SEWER BEDDING DETAILS AND GENERAL NOTES	06/14/05				
SHEET 8	SANITARY SEWER SPECIFICATIONS	06/14/05				
SHEET 9	SANITARY SEWER DETAILS	06/14/05				
SHEET 10	SANITARY SEWER LIFT STATION STANDARDS & GUIDELINES	06/14/05				

TOWN OF McCORDSVILLE

THOMAS STRAYER — TOWN COUNCIL PRESIDENT

GRANT ADAMS — PUBLIC WORKS CHAIRMAN

TONYA GALBRAITH — TOWN MANAGER

RONALD D. CRIDER — PUBLIC WORKS COMMISSIONER

REVISIONS		
REV. NO.	DESCRIPTION	DATE

MARK J. WITSMAN REGISTERED No. 10100264 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMEND FOR APPROVAL — DESIGN ENGINEER — DATE 7/12/05

TOWN OF McCORDSVILLE

DIRECTIONS FOR USE, GENERAL NOTES & REVISION LOG

SHEET 1 OF 10

LIME STABILIZATION

DESCRIPTION: This work shall consist of upgrading of mostly fine grained soils by uniformly mixing small amounts of lime (3 to 6%) by weight to provide a working platform for the road subbase.

MATERIALS: Material shall meet the requirements of the Section 913 of the INDOT Standard Specification

LIME:

a) High calcium or dolomite Hydrated Lime (Ca(oH)2 +Mg(oH)2) shall have a minimum of 90% total available calcium hydroxide content and the hydrates must contain no more than 5 % carbon dioxide content if sampled at the lime plant, or no more than 7 % if sampled at the job site.

b) High calcium hydrated lime shall have a minimum available calcium hydroxide Ca(oH)2 content of 90%. The method used for determination of available lime shall conform to AASHTO T219-72 or ASTM C25.

c) Maximum Mechanical Moisture content shall be 4%.

d) Gradation: All hydrated lime shall conform to the following gradation requirement. At least 85% passing a #200 sieve (0.075 mm). Determination of particle size shall conform to the provision for wet sieving on ASTM C110.

e) Other lime products such as quicklime - high calcium (CaO) or Dolomite (CaO- MgO) may be substituted with written approval by the Town Engineer. By-product lime (kiln dust) shall not be used.

WATER: Water used for lime modification shall be in accordance with all applicable requirements of 913 and 913.01 of the INDOT Specifications, except that the minimum acceptable pH is 6.5.

STORAGE AND HANDLING

a) Hydrated lime shall be stored and handled in closed weatherproof containers until immediately before distribution on the subgrade. Hydrated lime in bags shall be stored in weather protected conditions with adequate protection from ground dampness, and the facility shall be approved by the Town Engineer prior to commencement of any lime work.

b) Each shipment shall be accompanied by a bill of loading and by a certificate of compliance stating conformance to the applicable specification requirements. The certificate of compliance shall be submitted to the Town Engineer prior to the proof roll on the subgrade.

c) The Contractor shall take appropriate preventive and protective (safety) measure that shall be exercised by those working with this material. All safety measures shall comply with applicable OSHA requirements.

MIXTURE COMPOSITION:

a) Mix Design: Lime will be proportioned within a range of 3 to 6 percent of soil (oven - dry basis). The required proportion of lime will be recommended by the Contractor and approved by the Town Engineer prior to construction using samples of soil and lime. The Town Engineer reserves the right to make such adjustments of lime proportioning as are considered necessary during the progress of the work within the range specified.

b) Source or type of lime shall not be changed during the progress of the work without permission of the Town Engineer. However, the Town Engineer may choose to use different types of lime on different portions of the project, but shall not be mixed.

CONSTRUCTION REQUIREMENTS:

a) Temperature and Weather Limitations: No lime modification shall be performed at a soil temperature less than 45 degrees Fahrenheit (7 degrees C) and the air temperature rising, of subgrade soil when it is measured 4" (100 mm) below the surface. Lime shall not be mixed with frozen soils or with soil containing frost.

b) Preparation of Existing Roadway: All deleterious material, such as stumps, roots, turf, etc. and aggregate larger than 3" (75 mm) shall be removed. Any soft organic soils shall be removed as directed by the Town Engineer.

c) Spreading of Lime: The roadbed shall be scarified or disked prior to distribution of the lime. The machine shall be of such design that a visible indication is given at all times that the machine is cutting to the required depth; The lime shall than be distributed uniformly over the surface by means of cyclone, screw-type, or pressure manifold type distributor. The Town Engineer may reject any procedure which does not provide even distribution of lime.

Lime shall not be applied when wind conditions are such that blowing lime becomes objectionable to adjacent property owners or creates a hazard to traffic on adjacent roadways.

The spreading of lime shall be limited to the amount which can be incorporated after mixing. In no case shall compaction be started later than three (3) days after mixing into the soil. In the event that rain intervenes causing cessation of work and exposure of the lime to washing or blowing, the Town Engineer may require additional lime to be spread.

d) Mixing: The lime, soil and water (if necessary) shall be thoroughly blended by rotary speed mixers or a disc harrow. The mixing shall continue until a homogeneous layer of the required thicknesses has been obtained and clods are broken down so that 100 %, exclusive of rock particle, will pass a one-inch (25 mm) sieve and at least 60% will pass a 4 sieve (4.75 mm). The loose thickness of a single lime modified layer shall not exceed eight (8) inches (200 mm) if a disc harrow is used and fourteen (14) inches (355 mm) if a rotary speed mixer Is used.

e) Compaction: Compaction of the mixture shall begin as soon as is practicable mixing unless approved by the Town Engineer. If compaction is to be delayed, the surface of the lime modified soil shall be crown-graded and sealed by either blade dragging or light rolling immediately after mixing.

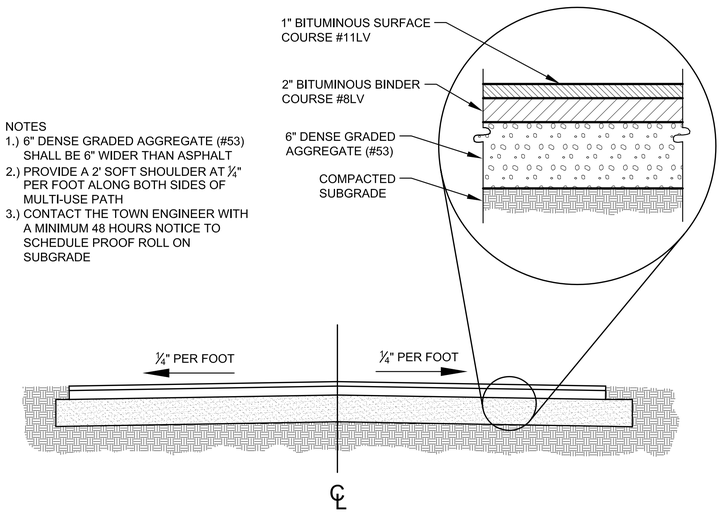
Compaction shall be continued until the Contractor has shown that the lime modified layer has a density not less than 100 percent within the special subgrade treatment zone and/or 95 percent below special subgrade treatment zone, of the maximum dry density.

The standard dry density of the lime treated soil shall be obtained by AASHTO 99. The field in-place dry density will be obtained by the Contractor in accordance with AASHTO T 191.

Aeration by means of further mixing, or the addition of water and further mixing, may be required by the Town Engineer to achieve the required compaction.

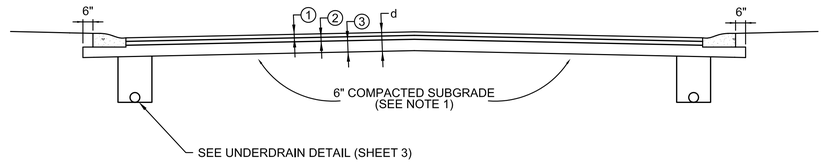
f) Finishing: When compaction of the lime modified soil is nearing completion, the surface shall be shaped to the required line, grades and cross section, and compaction continued until uniform and adequate compaction if obtained.

The Town Engineer reserves the right to determine the actual thickness of the completed and cured layer by coring or other means at the owner's expense, and any deficient areas shall be acceptably corrected.



MULTI-USE PATH DETAIL

SCALE: NONE



NOTES:

1. HMA SHALL BE PRODUCED FROM AN INDOT CERTIFIED HMA PLANT, IN ACCORDANCE WITH INDIANA TEST METHOD (ITM) 583.

2. THE CONTRACTOR SHALL PROVIDE A COPY OF THE CERTIFICATION TO THE TOWN ENGINEER AT OR BEFORE THE INSTALLATION OF THE HMA.

3. PG BINDER MATERIAL (LIQUID) SHALL BE PG 64-22 FOR TYPE A AND TYPE B MIXES.

4. RECYCLED MATERIALS, UP TO 25%, MAY BE USED BASE. IF OVER 15% RECYCLED MATERIAL IS USED, PG BINDER 58-28 SHALL BE USED RATHER THAN PG 64-22

LOCAL ROAD

d = 12"

① 1" HMA, TYPE A, 9.5 MM SURFACE

② 3" HMA, TYPE A, 19.0 MM INTERMEDIATE

③ 4" COMPACTED AGGREGATE BASE #53
4" COMPACTED AGGREGATE BASE #2

LOCAL ARTERIAL ROAD

d = 15"

① 1" HMA, TYPE A, 9.5 MM SURFACE

② 3" HMA, TYPE A, 19.0 MM INTERMEDIATE

③ 3" HMA, TYPE A, 25.0 MM BASE

④ 4" COMPACTED AGGREGATE BASE #53
4" COMPACTED AGGREGATE BASE #2

COLLECTOR ROAD

d = 18"

① 1" HMA, TYPE B, 9.5 MM SURFACE

② 3" HMA, TYPE B, 19.0 MM INTERMEDIATE

③ 6" HMA, TYPE B, 25.0 MM BASE

④ 4" COMPACTED AGGREGATE BASE #53
4" COMPACTED AGGREGATE BASE #2

PAVEMENT CONSTRUCTION

SCALE: NONE

PAVEMENT CONSTRUCTION

1.) Subgrade shall be lime stabilized per the lime stabilization specification on this sheet.

2.) Adequacy of existing subgrades shall be determined solely by the town based on a contractor performed proof roll with a fully loaded tri-axle dump truck. A proof roll shall be performed on all street subgrade prior to placing stone, under drains and installing curb. A second proof roll shall be performed on the stone prior to placing the asphalt base. The adequacy of the stone and subgrade shall be determined solely by the town.

3.) Place tack coat in accordance with the most recent INDOT standard specifications for asphalt pavement sections.

4.) Local Arterial Road is defined as a low capacity and low speed roads within subdivisions whose function is to become a collector street for local subdivision traffic and move traffic from within the community to other locations in the community and to the existing county roads. Whether a street is defined as a Local Arterial Road is at the sole discretion of the Public Works Commissioner.

5.) Installation of or provisions for installation of all underground utilities (including service lines and laterals) shall be placed prior to the construction of pavement including lime stabilization.

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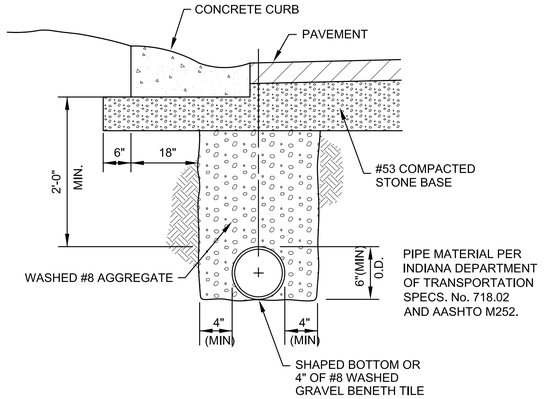
APPROVED	PUBLIC WORKS COMMISIONER	7/12/05 DATE
APPROVED	TOWN COUNCIL PRESIDENT	7/12/05 DATE

TOWN OF McCORDSVILLE

TOWN STANDARDS RIGHT-OF-WAY SECTIONS & PAVEMENT SPECIFICATIONS



UNDERDRAIN DETAIL

SCALE: NONE

1. THE EXISTING PAVEMENT IS TO BE SAW CUT TO PROVIDE A CLEAN JOINT.

2. TRENCH SPOIL IS TO BE REMOVED FROM THE WORK SITE AND DISPOSED OF OUT OF THE RIGHT-OF-WAY AT A PREDESIGNATED APPROVED AREA.

3. FLOWABLE FILL IS TO BE POURED INTO THE TRENCH TO SERVE AS BACKFILL, TO THE DIMENSIONS AND SPECIFICATIONS LISTED IN THIS DETAIL.

4. THE ASPHALT PATCH IS TO CONSIST OF A MINIMUM OF 5 (FIVE) INCHES OF #8 HAC BITUMINOUS BINDER AND 1 (ONE) INCH OF #11 HAC BITUMINOUS SURFACE. IF THE EXISTING PAVEMENT IS THICKER THAN 6 (SIX) INCHES, ADDITIONAL BINDER IS TO BE USED TO MATCH THE EXISTING PAVEMENT THICKNESS. IN NO CASE IS LESS THAT 6 (SIX) INCHES OF ASPHALT TO BE USED.

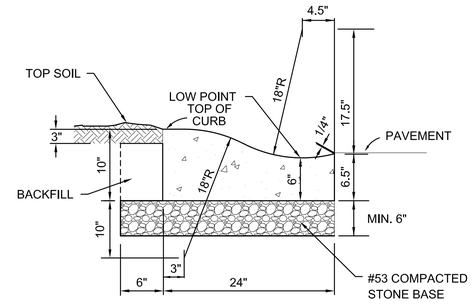
5. THE EXISTING PAVEMENT IS TO BE TACK COATED PRIOR TO THE LAYING OF NEW ASPHALT. TACK COAT IS TO BE APPLIED AS SPECIFIED IN THE LATEST INDOT SPECIFICATIONS, SECTIONS 409 AND 902.

6. THE NEW SURFACE IS TO BE SLOPED AT THE SAME RATE AS THE EXISTING SURFACE.

7. A 2 (TWO) INCH WIDE BAND OF CRACK SEALANT IS TO BE APPLIED ALONG THE JOINT BETWEEN THE EXISTING AND NEW ASPHALT SURFACE. SEALANT IS TO BE APPLIED IN ACCORDANCE WITH INDOT SPECIFICATIONS, SECTION 305.

8. THE FLOWABLE FILL MIX IS TO CONTAIN, FOR EVERY CUBIC YARD OF BATCH MATERIAL, NO MORE THAN 50 LBS OF PORTLAND CEMENT, NO MORE THAN 500 LBS OF WATER.

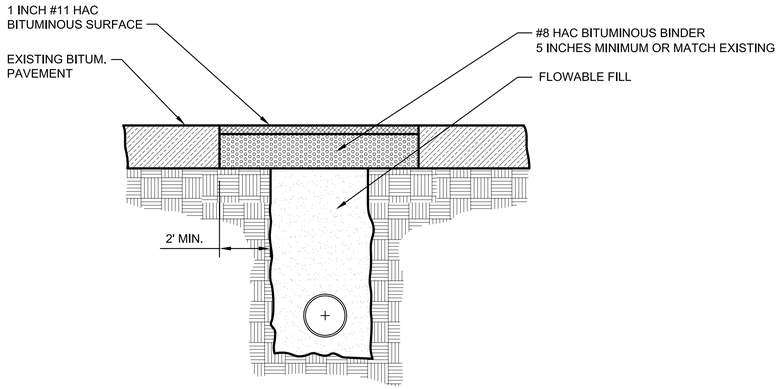
9. THE COMPRESSIVE STRENGTH OF THE FLOWABLE FILL IS NOT TO EXCEED 100 PSI AT 28 DAYS.



(TYPE I)

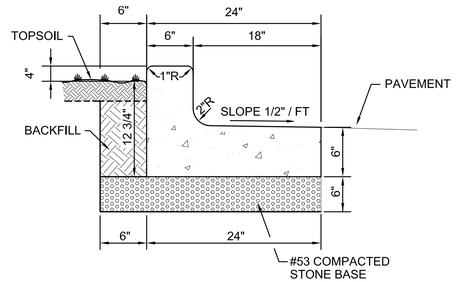
2' CONCRETE ROLL CURB & GUTTER

SCALE: NONE



ROAD CUT PATCH DETAIL

NOT TO SCALE



(TYPE II)

2' COMBINED CONCRETE CURB AND GUTTER

SCALE: NONE

STREET SIGN STANDARDS

All traffic and road name signs in and as a result of a major subdivision or a minor subdivision with newly constructed streets, shall be supplied and installed by the developer. The placement of the signs shall be as shown on the traffic sign plan that is to be submitted with the construction drawings. The traffic sign plan shall show the type of sign, size of sign, location of sign with dimensions and the streets to scale. A five (5) year maintenance bond shall be posted on the signs. The installer or developer shall notify the Town Engineer in writing when the signs are installed, so they can be inspected. Also include the date and time of installation of each sign. The plat shall not be recorded until the signs have been accepted.

TRAFFIC SIGNS

1.) Traffic signs shall be designed and installed to conform with the applicable requirements of the Indiana Manual of Uniform Traffic Control Devices, latest edition.
2.) No spliced sheeting unless acceptable by the Indiana Department of Transportation standard specifications, latest edition.
3.) Reflective sheeting for traffic signs shall be encapsulated lens (high intensity).
4.) Posts used for traffic signs shall be 3 lb. galvanized channel posts.
5.) Traffic sign height shall comply with the Indiana Manual of Uniform Traffic Control Devices, latest edition.
6.) Posts shall be installed with no less than three (3) feet of post in the ground.
6.) Backing material will be made of sheet aluminum.
7.) Bolts for mounting shall be 5/16" galvanized, stainless steel or plated carriage bolts.
8.) The number of posts for mounting and the minimum thickness or gage of sheet shall be as shown for the appropriate sign width:

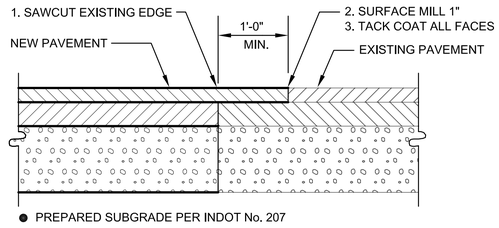
WIDTH(inches)	NO. OF POSTS	THICKNESS (inches) ALUMINUM SHEET
Up to 24"	1	0.080
25" to 30"	1	0.080
31" to 60"	2	0.100
61" and over	2	0.125

STREET NAME SIGNS

1.) Intersections shall have one (1) road name sign for each street.
2.) All road name signs shall be made of an aluminum extruded blade.
4.) Reflective sheeting for road name signs shall be inclosed lens (high intensity), green in color.
5.) Letters and numerals for the road name signs shall be high intensity reflective sheeting, series B letters, and white in color.
3.) Posts used for road name signs shall be 2 lb. galvanized channel posts.
6.) Minimum height to bottom of sign for road name signs shall be seven (7) feet.
7.) Posts shall be installed with no less than three (3) feet of post in the ground.
8.) Material for posts shall be galvanized steel.
7.) Bolts for mounting shall be 5/16" galvanized, stainless steel or plated carriage bolts.

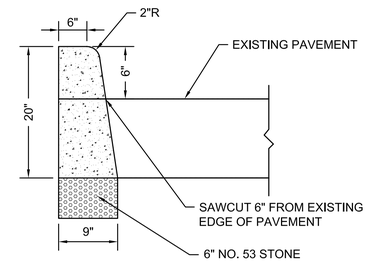
ROAD NAME SIGN DETAIL

SCALE: NONE



TYPICAL PAVEMENT TIE-IN

SCALE: NONE



CONCRETE CURB (BARRIER)

SCALE: NONE

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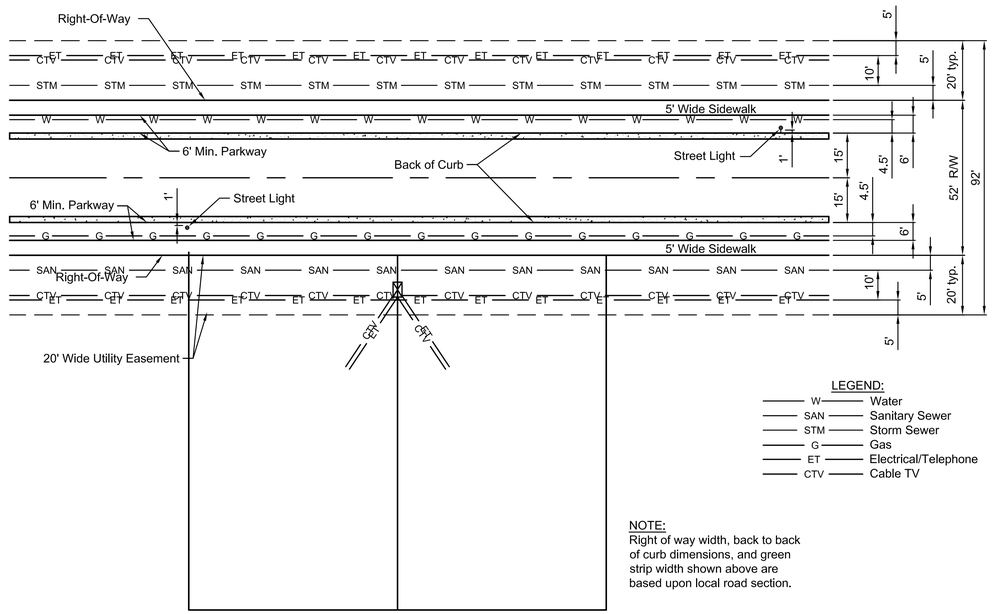
APPROVED — PUBLIC WORKS COMMISIONER — DATE 7/12/05

APPROVED — TOWN COUNCIL PRESIDENT — DATE 7/12/05

TOWN OF McCORDSVILLE

TOWN STANDARDS RIGHT-OF-WAY DETAILS

SHEET 3 OF 10



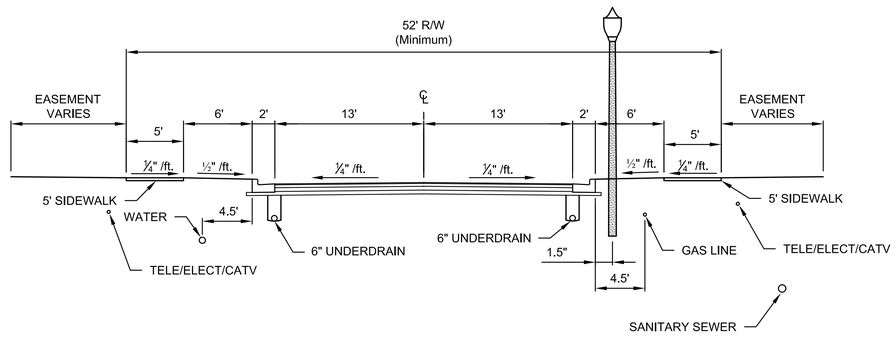
NOTE:
Right of way width, back to back of curb dimensions, and green strip width shown above are based upon local road section.

TYPICAL LOT UTILITY LOCATION

NOT TO SCALE

GENERAL NOTES:

1.) The location of proposed utilities as indicated hereon are based upon the orderly development of the land. Strict adherence to the indicated location is required. Requests to change the location of the proposed utilities shall be submitted in writing to the Public Works Commissioner. Utilities not meeting these requirements shall be removed and replaced as directed by the Public Works Commissioner at the owner's expense.



TYPICAL LOCAL ROAD UTILITY LOCATION

NOT TO SCALE

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TOWN OF McCORDSVILLE

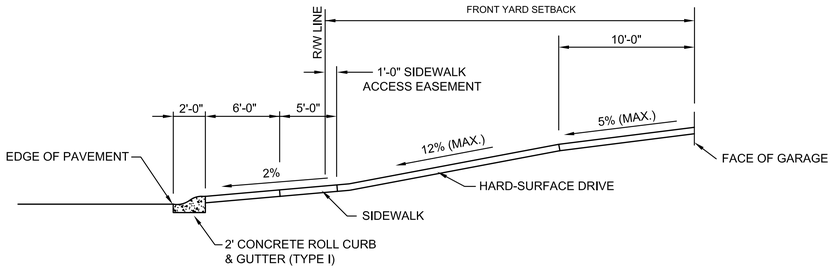
TOWN STANDARDS UTILITY LOCATION GUIDELINES

RESIDENTIAL DRIVES

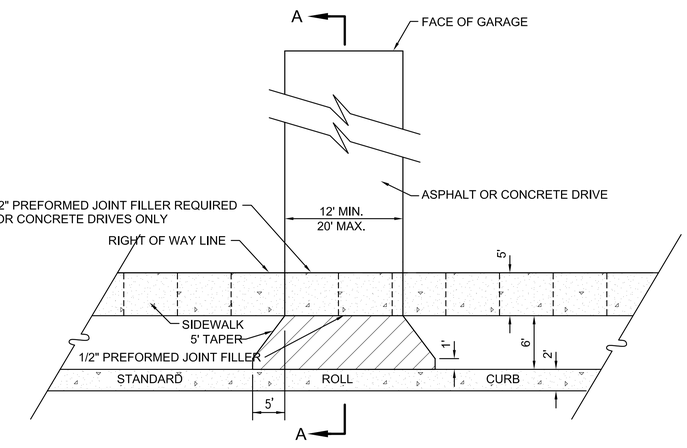
1.) THE MAXIMUM ALGEBRAIC DIFFERENCE IN GRADE FOR ANY 10 FOOT INTERVAL SHALL NOT EXCEED 8% FOR CREST VERTICAL CURVES. NOR 10% FOR SAG VERTICAL CURVES.

2.) ALL LOTS SHALL DRAIN TO ADJACENT STREETS EXCEPT WITH THE PRIOR APPROVAL OF THE PUBLIC WORKS COMMISSIONER.

3.) CONCRETE DRIVES REQUIRE CONTROL JOINTS EVERY 10 FEET EACH WAY.



SECTION "A-A"



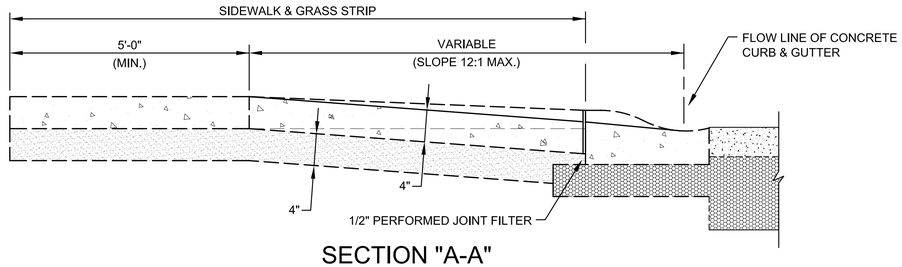
1. CROSS HATCHED AREAS SHALL BE EITHER 6" PLAIN CONCRETE OR 1" SURFACE ON 2" BITUMINOUS BASE ON 4" #53 COMPACTED AGGREGATE BASE, EXTENDING TO THE SIDEWALK OR R/W LINE WHICHEVER IS NEAREST TO THE ROADWAY.

2. SUBGRADE UNDER ALL SIDEWALKS AND DRIVES SHALL BE IN ACCORDANCE WITH SECTION 207.02 OF CURRENT INDOT STANDARD SPECIFICATIONS.

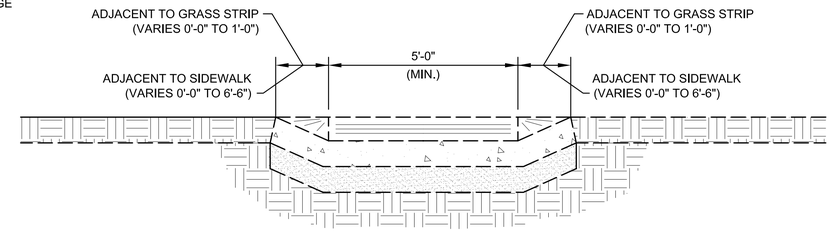
3. SIDEWALKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPROPRIATE STANDARD AND SHALL BE CONTINUOUS ACROSS THE DRIVEWAY. SIDEWALK SECTION ACROSS DRIVEWAY SHALL BE SAME THICKNESS AS DRIVEWAY WITH A 6-INCH MINIMUM.

RESIDENTIAL DRIVEWAY DETAIL

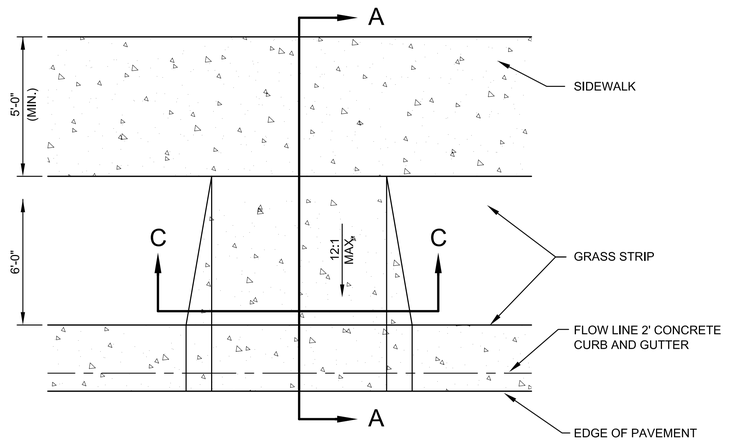
SCALE: NONE



SECTION "A-A"



SECTION "C-C"



HANDICAP RAMP CONSTRUCTION

SCALE: NONE

HANDICAP RAMP CONSTRUCTION

1.) All handicap ramps shall meet the requirements of the American Disabilities Act, the most recent INDOT standard specifications, and the Town of McCordsville's most recent standards. Curb modifications required for handicap ramps shall be provided at time of initial construction.

2.) Minimum width of curb ramp shall be 5 feet not including flares. Maximum slope of ramps and flares shall be 12:1.

3.) Handicap ramps are to be located as shown on the plans or as directed by the Public Works Commissioner.

4.) Ramps shall be provided at the centerline of radius at all corners of every street intersection where there is an existing or proposed sidewalk and curb. Ramps shall also be provided at walk locations at mid-block in vicinity of hospitals, medical centers, or athletic stadiums. The use of details contrary to those shown hereon shall require the prior written approval of the Public Works Commissioner.

5.) Surface texture of the ramp shall be ramp groves located 2" on center and 0.3" deep.

6.) Care shall be taken to assure a uniform grade on all ramps with no breaks in grade.

7.) Drainage structures shall not be placed in line with the ramps except where existing drainage structures are being utilized in the new construction. Location of the ramps shall take precedence over location of drainage structures.

8.) The normal gutter line profile shall not be maintained through the area of the ramp. Drainage inlets should be located uphill from the curb ramps to prevent puddles at the path of travel.

9.) Expansion joint for the ramp shall be a maximum 1/2" wide. The top of the joint filler for all ramp types shall be flush with adjacent concrete.

10.) Crosswalk and stop line marking, if used, shall be so located as to stop traffic short of ramp crossing.

SIDEWALK CONSTRUCTION

1.) Sidewalks shall be constructed of plain concrete four (4) inches thick except where crossing driveways where the sidewalk shall be a minimum of six (6) inches thick.

2.) Sidewalks shall be constructed on 2" of crushed stone or sand.

3.) Control joints shall be placed every 5 feet on center.

4.) Expansion joints shall be placed every 40 feet on center.

5.) Broom finish across the direction of travel and include a 1" steel trowel finish along both sides of the sidewalk and along either side of all expansion and control joints.

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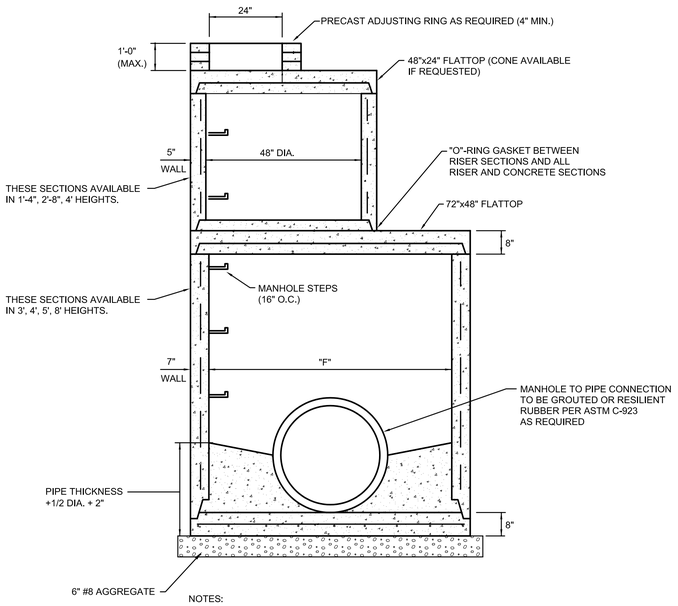
TOWN OF McCORDSVILLE

TOWN STANDARDS DRIVE WAY AND HANDICAP RAMP DETAILS

SHEET 5 OF 10



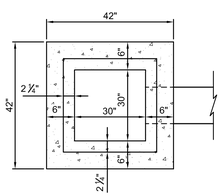
NOTES:

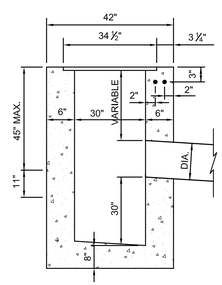
1.) MANHOLE CONFORMS TO A.S.T.M. C-478.

2.) TONGUE AND GROOVE JOINT WITH MASTIC, BUTYL ROPE OR GASKETED PER ASTM C-443 AS REQUIRED.

MANHOLE TYPE	MANHOLE DIAMETER "F"	MAXIMUM PIPE SIZE	
		PIPE ENTERING / PIPE EXITING AT 0°-45° BEND	PIPE ENTERING / PIPE EXITING AT 45°-90° BEND
J	60"	36"	33"
K	72"	48"	36"
L	96"	54"	48"
M	102"	72"	66"
N	108"	84"	72"

STORM MANHOLES TYPE "J - K - L - M & N"
NOT TO SCALE





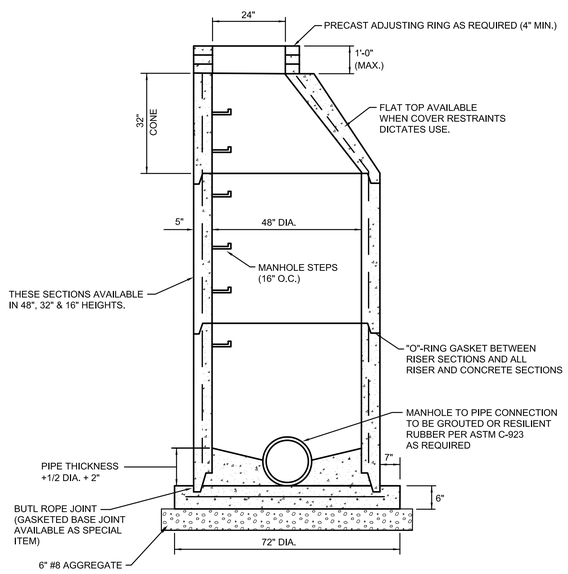
NOTE:

1.) STRUCTURE SHALL COMPLY WITH INDOT SPECIFICATIONS

2.) MIMIMUM CONCRETE COMPRESSIVE STRENGHT 4000 PSI

3.) MAXIMUM OF FOUR 2" ADJUSTING SECTIONS, STRIKE CLEAN INSIDE

CATCH BASIN
NOT TO SCALE



NOTE:

1.) MANHOLE CONFORMS TO A.S.T.M. C-478.

MAXIMUM PIPE SIZE	
PIPE ENTERING / PIPE EXITING AT 0°-45° BEND	PIPE ENTERING / PIPE EXITING AT 45°-90° BEND
24"	21"

STORM MANHOLES TYPE "C"
NOT TO SCALE

MANHOLE NOTES:

1.) Type "J, K, L, M & N" manholes as detailed hereon require a certain minimum depth. In cases where the depth of the storm sewer is not sufficient to meet the minimum depth as by the detail, "F" diameter manhole section may be used required by the detail, "F" diameter manhole section may be used throughout the depth of the manhole.

2.) Manholes shall conform to ASTM C-478. Joints shall conform to ASTM C-443. The use of cast-in-place concrete structures shall require the prior written approval of the Town Engineer. Regardless of the type of casting used, the casting shall be centered over the manhole steps.

3.) Manhole steps shall be made from a steel reinforcing rod encapsulated in a copolymer polypropylene resin. The manhole steps shall equal or exceed OSHA requirements manhole steps, PS1-PF as manufactured by M.A. Industries, Inc. Peachtree City, Georgia, or approved equal.

CASTING NOTES:

1.) Castings which drain combined curb and gutter, Type II curbing shall be Neenah R-3286-8V or Neenah R-3287-10V or as approved by the Town Engineer. Manholes shall not be used to drain combined curb and gutter, Type II curbing.

2.) Castings which drain roll curb and gutter, Type I curbing shall be Neenah R-3501-TR, or Neenah R-3501-TL or as approved by the Town Engineer. Manholes shall not be used to drain roll curb and gutter, Type I curbing.

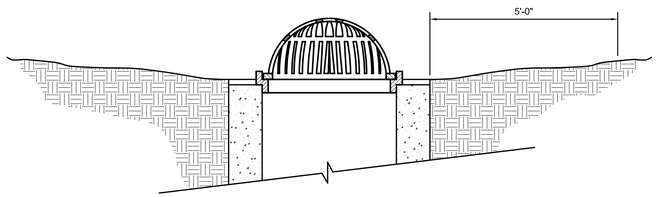
3.) Castings for inlets which drain open pavement areas without curbing shall be Neenah R-3402-E or as approved by the Town Engineer.

4.) Castings for manholes which drain open pavement areas without curbing shall be Neenah R-2501 or as approved by the Town Engineer.

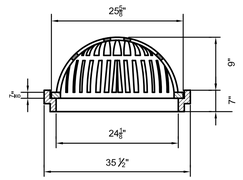
5.) Castings for use on inlets or manholes which drain swales or dry bottom detention basins shall be Neenah R-2560 or as approved by the Town Engineer.

6.) Castings for manholes which do not collect surface water shall be Neenah R-1772-A or as approved by the Town Engineer.

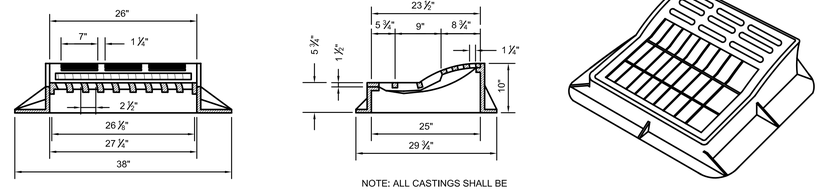
7.) All castings shall be stamped "DUMP NO WASTE".



NOTE: ALL CASTINGS SHALL BE STAMPED "DUMP NO WASTE"



BEEHIVE GRATE CASTING WITH FRAME - NEENAH R-2560-E2
NOT TO SCALE



NOTE: ALL CASTINGS SHALL BE STAMPED "DUMP NO WASTE"

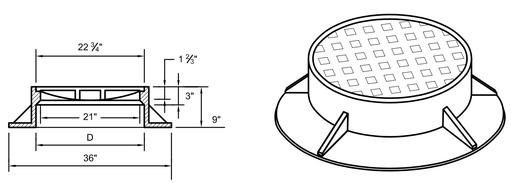
R-3501-T(L&R) NEENAH CURB INLET FRAME, GRATE & CURB BOX DETAIL
NOT TO SCALE

CATALOG NO.	D	Wt. Lbs.
R-1772	25"	250
R-1772-A	25"	285

HEAVY DUTY

FURNISHED WITH PLATEN LID, SIMILAR TO R-1706-1

NOTE: ALL CASTINGS SHALL BE STAMPED "DUMP NO WASTE"



STORM MANHOLE R-1772-A WITH CONCEALED PICK HOLES
NOT TO SCALE

REVISIONS		
REV. NO.	DESCRIPTION	DATE

MARK J. WITSMAN REGISTERED No. 10100264 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMEND FOR APPROVAL — DESIGN ENGINEER — DATE 7/12/05

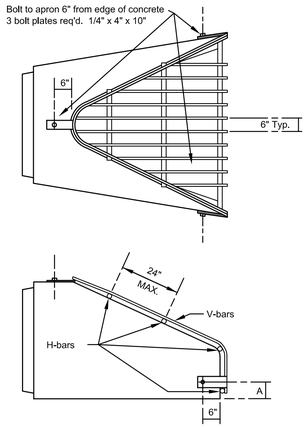
APPROVED — PUBLIC WORKS COMMISIONER — DATE 7/12/05

APPROVED — TOWN COUNCIL PRESIDENT — DATE 7/12/05

TOWN OF McCORDSVILLE

TOWN STANDARDS STORM SEWER STRUCTURE DETAILS

SHEET 6 OF 10

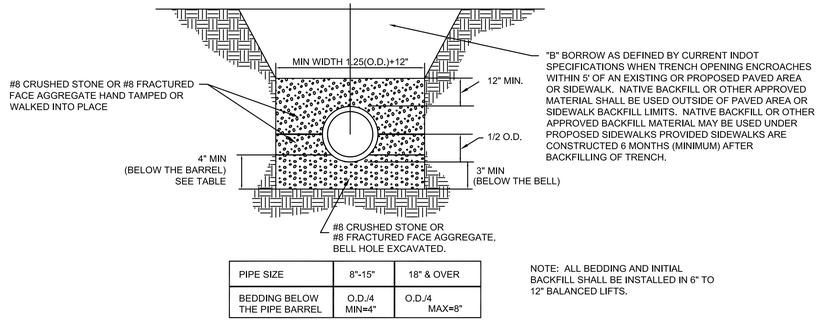


NOTES:

1. BARS & PLATES ARE HOT-ROLLED STEEL.
2. BARS, PLATES & PIPE ARE FINISHED WITH 2 COATS OF ALUMINUM PAINT.
3. BOLTS ARE GALVANIZED.
4. SEE STD. PLATES A-10 & A-11 FOR APRON DIMENSIONS.
5. TRASH GUARDS WITH DIFFERENT DIAMETER BARS ARE AVAILABLE, SPECIAL ORDER.

TRASH GUARDS FOR CONCRETE APRONS

NOT TO SCALE

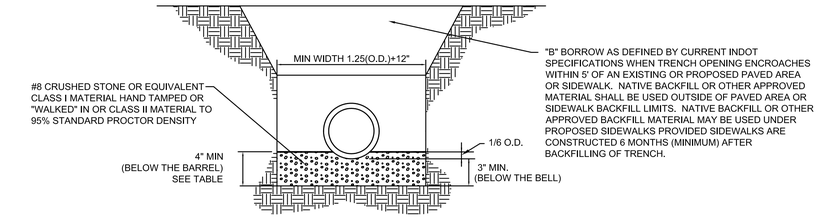


PIPE SIZE	8"-15"	18" & OVER
BEDDING BELOW THE PIPE BARREL	O.D./4 MIN=4"	O.D./4 MAX=8"

NOTE: ALL BEDDING AND INITIAL BACKFILL SHALL BE INSTALLED IN 6" TO 12" BALANCED LIFTS.

FLEXIBLE PIPE (HDPE & PVC) TRENCH DETAIL

NOT TO SCALE



PIPE SIZE	8"-15"	18" & OVER
BEDDING BELOW THE PIPE BARREL	O.D./4 MIN=4"	O.D./4 MAX=8"

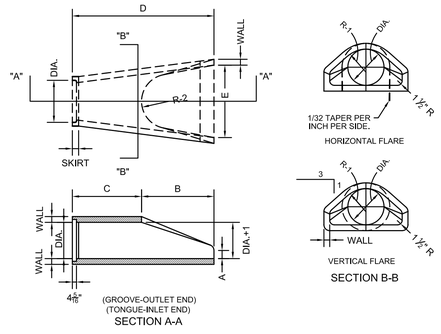
NOTE: ALL BEDDING AND INITIAL BACKFILL SHALL BE INSTALLED IN 6" TO 12" BALANCED LIFTS.

RIDGID PIPE (RCP) TRENCH DETAIL

NOT TO SCALE

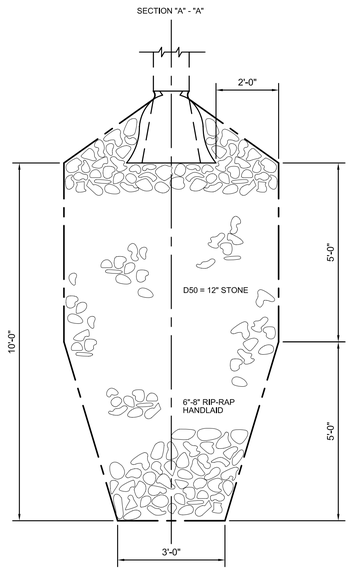
DIA.	WALL	G or T	WT. SEC.	A	B	C	D	E	DIA. +1	R-1	R-2	SKIRT
12	2	1 1/2	530	4	24	48 1/8	72 7/8	24	13	10 1/16	9	3 1/2
15	2 1/4	2	740	6	27	46	73	30	16	12 1/2	11	3 1/2
18	2 1/2	2 1/2	990	9	27	46	73	36	19	15 1/2	12	4
21	2 3/4	2 1/4	1280	9	35	38	73	42	22	16 1/8	13	4
24	3	2 1/2	1520	9 1/2	43 1/2	30	73 1/2	48	25	16 11/16	14	4 1/2
27	3 1/4	2 1/2	1930	10 1/2	48	25 1/2	73 1/2	54	28	17 3/4	14 1/2	4 1/2
30	3 1/2	3	2190	12	54	19 3/4	73 3/4	60	31	18 5/16	15	5
33	3 3/4	3 3/8	3150	13 1/3	58 1/2	39 1/4	97 3/4	66	34	23 3/4	17 1/2	5 1/2
36	4	3 1/2	4100	15	63	34 3/4	97 3/4	72	37	24 1/16	20	5 1/2
42	4 1/2	3 3/4	5380	21	63	35	98	78	43	27 1/4	22	5 1/2
48	5	4 1/4	6550	24	72	26	98	84	49	28 1/8	22	5 3/4
54	5 1/2	4 3/4	8040	27	65	35	100	90	55	32 7/8	24	6 1/4
60	6	5	8750	30	60	39	99	96	61	36 3/4	24	6 3/4
66	6 1/2	5 1/2	10630	24	78	21	99	102	67	35 11/16	24	7 1/4
72	7	6	12520	34	78	21	99	108	73	38 5/8	24	7 3/4
78	7 1/2	6 1/2	14430	24	78	21	99	114	79	41 15/16	24	8 1/2
84	8	7	16350	24	78	21	99	120	85	44 13/16	24	9

NOTES: 1. MANUFACTURE OF END SECTION IS IN ACCORDANCE WITH APPLICABLE PORTIONS OF A.S.T.M. SPECIFICATION C76.



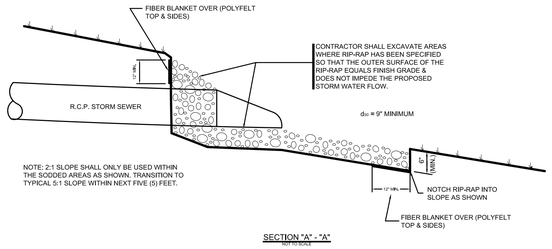
PRECAST CONCRETE END SECTION DETAIL

NOT TO SCALE



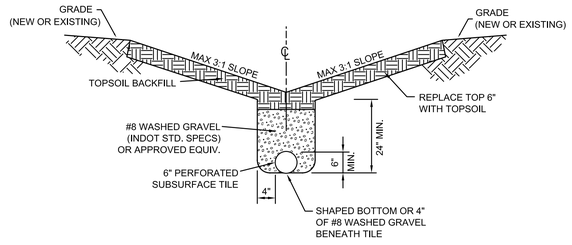
RIP-RAP DETAIL

NOT TO SCALE



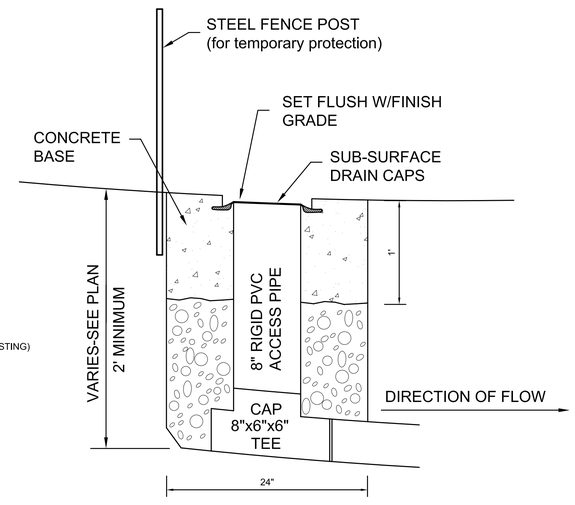
SECTION "A" - "A"
NOT TO SCALE

NOTE: SWALES SHALL BE CONSTRUCTED WITH A MINIMUM 1.0 PERCENT PROFILE GRADE. A 6" INCH DIAMETER UNDER DRAIN IS REQUIRED FOR ALL REAR YARD SWALES. SEE DETAIL SHOWN ON THIS SHEET.



SWALE UNDERDRAIN DETAIL

NOT TO SCALE



SUBSURFACE DRAIN (SSD) RISER DETAIL

NOT TO SCALE

REVISIONS		
REV. NO.	DESCRIPTION	DATE

MARK J. WITSMAN REGISTERED No. 10100264 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMEND FOR APPROVAL	DESIGN ENGINEER	7/12/05 DATE
APPROVED	PUBLIC WORKS COMMISIONER	7/12/05 DATE
APPROVED	TOWN COUNCIL PRESIDENT	7/12/05 DATE

TOWN OF McCORDSVILLE

TOWN STANDARDS STORM SEWER BEDDING DETAILS AND GENERAL NOTES

SHEET 7 OF 10

GENERAL NOTES

1.) Sanitary sewer pipe of other material not meeting Town of McCordsville Standards shall require the prior written approval of the Town Engineer.
2.) The Contractor shall submit information to the Town Engineer showing conformance with these specifications upon request.
3.) Forty-eight (48) hours notice shall be given to the Town Engineer prior to the start of sewer construction and prior to any testing.
4.) The contractor shall be responsible for verifying that all state highways, city, and county permits have been obtained by the developer prior to start of construction.
5.) Backfill around all structures and all cuts under paved areas with B-barrow as defined by current INDOT specifications. Trenches opening within 5-feet of paved roadways shall be backfilled with B-barrow as defined by current INDOT specifications. Backfill under sidewalks shall be B-barrow; unless the walks are constructed a minimum of 6 months after backfill has been in place. The Town of McCordsville may require an analysis of the B-barrow to confirm its compliance with INDOT specifications at the contractor's expense.
6.) Water and sewer line crossings and separations shall be in accordance with 327 IAC 3-6-9.
7.) Trench shall be opened sufficiently ahead of pipe laying to reveal obstruction, and shall be properly protected and/or barricaded when left unattended.
8.) No water shall be permitted to flow into the sanitary sewer system during construction. The contractor shall utilize a pump to keep the water level below the pipe. Pump discharge shall be directed to a storm outlet in accordance with local, state and federal laws and regulations. Any pipe entering existing sewers shall be plugged with screw type mechanical, braced plug and tied in place until such time as all tests on the sewers have been completed and the lines have passed all punch lists.
9.) The contractor shall use a laser and target wherever possible to insure proper construction at the planned grade.
10.) The contractor shall provide measurements of the slope of the sewer for each manhole section as construction progresses. Such measurements shall be certified by a registered land surveyor or engineer and be available on-site for observation by the Town Engineer. No more than three manhole sections can be constructed in advance of such measurements.
11.) The contractor shall be required to furnish the developer's engineer with a set of prints, marked in red pencil, showing actual sewer location and invert, to include lateral location, depth and length. Such asbuilt prints must be received by the developer's engineer before the final contract payment can be authorized. The sanitary sewer laterals and stubs termination shall be indicated on the surface with a 2"x4" wood board or other appropriate marker set immediately above the said termination point.
12.) Record drawings shall be provided to the Town Engineer for review and approval. Once approved, two copies and electronic images of the approved record drawings will be provided. The electronic images will be in an acceptable format approved by the Town Engineer. A site plan in state plane coordinates compatible with the Hancock County GIS system will also be provided with the electronic files showing the property lines, easements, streets and right-of-ways and as-built locations of the sanitary sewer, storm sewer and water lines.

SANITARY SEWER PIPE

1.) Sanitary sewer pipe between 6 and 15 inches in diameter shall be SDR 35 PVC in accordance with ASTM D3034 and ASTM 2321. Sanitary sewer pipe buried 15 feet or greater shall be SDR 26 PVC in accordance with ASTM D3034. PVC pipe shall have grooved bell and gasket. The pipe shall be made of PVC plastic in accordance with ASTM D1784.
2.) Sanitary sewer pipe greater than 15 inches in diameter shall be either:
   a. PVC SDR 35 in accordance with ASTM D3034 and ASTM 2321. PVC pipe shall have grooved bell and gasket. The pipe shall be made of PVC plastic as defined in ASTM D1784. Sanitary sewer pipe buried 15 feet or greater shall be SDR 26 PVC in accordance with ASTM D3034.
   b. Profile sewer in accordance with ASTM F949. The pipe and fittings shall have a minimum cell classification of 12454 in accordance with ASTM D1784. The joints shall be push-on bell and spigot type using elastomeric ring gaskets conforming to ASTM D3212 and ASTM F477. The pipe shall have a minimum stiffness of 46 PSI when measured in accordance with ASTM D2412. Profile sewer pipe is not permitted at depths 15 feet or greater.
3.) PVC sewer fittings shall be SDR 26 in accordance with ASTM D3034. Fittings in sizes through 8-inches shall be molded in one piece with elastomeric joints and minimum socket depths as specified in sections 6.2 and 7.3.2. Fittings 10-inches and larger shall be molded or fabricated in accordance with section 7.11 with manufacturers standard pipe bells and gaskets. Gaskets for elastomeric joints shall be molded with a minimum cross-sectional area of 0.20 square inches and conform to ASTM F-477 specification.
4.) The minimum slope for sewer acceptance by the Town of McCordsville are:

Size of pipe	Minimum constructed slope
8-inch	0.40%
10-inch	0.28%
12-inch	0.22%
15-inch	0.15%
18-inch	0.12%
21-inch	0.10%
24-inch	0.08%

In the event the contractor does not meet the minimum slopes, the sewer section and any other affected sewer sections shall be reconstructed to meet such minimum slopes.

SANITARY SEWER LATERALS OUTSIDE OF THE RIGHT OF WAY/EASEMENT

1.) Only approved contractors may install sewer laterals. Contractors must provide proof of liability insurance and a reference list for consideration to be added to the approved list.
2.) If working within an existing right-of-way, the contractor must obtain a right-of-way permit from the appropriate local jurisdiction.
3.) Contractors are responsible for obtaining all appropriate permits prior to construction. No deviations from the approved plot plan are permitted unless instructed by the Office of Public Works. Immediately notify the office of Public Works of any conflicts or discrepancies noted on the approved plot plan. It is the sole responsibility of the owner to ensure all contractors and subcontractors comply with the approved plot plan. A copy of the approved plot plan is to be provided to the Inspector at the time of inspection.
4.) The portion of the lateral installed from the right-of-way/easement to the building shall be inspected by the Office of Public Works prior to being backfilled.
5.) Lateral inspections shall be scheduled forty-eight (48) hours in advance with the Office of Public Works.
6.) A 6" diameter pipe Type I clean out shall be installed 3' away from building. A threaded plug shall be used to ensure the pipe is 100% watertight. For laterals greater than 100 LF as measured along the pipe, clean outs shall be installed at the right-of-way or property line or at 100 feet increments to provide access every 100 feet.
7.) Clean outs are not to be installed in sidewalks, driveways, or any other paved or unpaved traffic areas or pedestrian paths.
8.) All clean outs except within 3 feet of the building are to be Type II cleanouts.
9.) The connection of the building plumbing to the lateral shall be made with a fernco coupling within three (3) feet of the building before the cleanout except when the building has a basement. If the connection is made at the basement and there is not an adjacent slab or craw space, then a glued joint connection shall be made.
10.) The connection point shall not be made under porches or foundations.
11.) The fernco coupling shall be sealed watertight using steel band clamps. The piping on either side of the connection point shall be aligned and have no offsets or angles.

SANITARY SEWER LATERALS - GENERAL NOTES

1.) Laterals are to be constructed to the right-of-way/easement line and plugged tight with a braced plastic disc or cap capable of withstanding a low pressure air test without leakage. Only after the sanitary sewer has been tested and accepted by the Town Engineer is further installation of the laterals outside the right-of-way/easement permitted.
2.) Normal lateral slope is 1/4" per foot. Minimum lateral slope is 1/8" per foot. Any areas found not to comply with the minimum slope shall be removed and reinstalled.
3.) Lateral pipe shall be a minimum of 6" diameter and shall be SDR 35 PVC in accordance with ASTM D3034 and ASTM 2321. Laterals with any portion buried 15 feet or greater shall be SDR 26 PVC in accordance with ASTM D3034 to the terminus point either the right-of-way or easement line. PVC pipe shall have grooved bell and gasket. The pipe shall be made of PVC plastic conforming to ASTM D1784. Size and conformance shall be clearly labeled on pipe for inspection.
4.) All PVC sewer fittings shall be SDR 26 in accordance with ASTM D3034. Fittings shall be molded in one piece with elastomeric joints and minimum socket depths as specified in sections 6.2 and 7.3.2. Gaskets for elastomeric joints shall be molded with a minimum cross-sectional area of 0.20 square inches and conform to ASTM F-477 specification.
5.) All sewer laterals shall be bedded the same as the main line sewer. A minimum D/4 or 6-inches of compacted #8 stone under the pipe, 6-inches on either side of the pipe, and 12" above the pipe are required.
6.) Laterals are not to be installed under driveways.
7.) Full depth granular backfill is required for the lateral trench in areas within five (5) feet of drive ways, sidewalks or other traffic areas.
8.) Laterals are to be traced along the top of the pipe with a minimum size of 14 gauge wire from the wye to the clean out within three (3) feet of the building and extended above grade. The contractor will install the tracer wire utilizing a method does not require any splices in the tracer wire. The tracer wire will be mounted to the top of the pipe in at least three locations along each stick of pipe. Any splices that become necessary during construction will be sealed water tight.
9.) Laterals will be separated from water mains and water service lines by ten (10) feet when measured horizontally from the outside edge of the lateral to the outside edge of any existing or proposed water mains or water service lines except when crossing water mains or water service lines which shall be separated by eighteen (18) inches when measured vertically. Crossings must be at a minimum angle of 45 degrees.

SANITARY MANHOLES AND CASTINGS

1.) All sanitary manholes shall be precast concrete manholes in accordance with ASTM C-478 and section 720. O-rings shall conform to C-443. Kent seal or approved equal shall also be applied to all joints and between riser rings and castings. Manhole step spacing shall be no more than 16-inches.
2.) The casting elevations are set by plan. However, the castings are to be adjusted in the field by the Town's representative should a discrepancy occur between plan grade and existing grade. A new manhole ring and cover shall be installed to establish grade. Maximum height of adjusting rings from the top of the cone to the bottom of the casting shall be 12-inches.
3.) Butyl rubber coating shall be applied around each manhole joint from 6-inches above to 6-inches below each joint. The appropriate primer shall be applied prior to applying the double row of kent seal. Each manhole joint will then be wrapped four times with minimum 15 inch wide 80 gage (0.8 mil) polyethylene plastic stretch wrap. Inside joints to be filled with non-shrink grout or precoat plug material.
4.) The manhole chimneys, including all riser rings shall be sealed the same as the manhole joints. The butyl rubber and plastic stretch wrap shall extend over the flange of the casting.
5.) Manhole castings shall be East Jordan casting 1022-2 or approved equal with a heavy duty self-sealing lid stamped "SANITARY SEWER." Waterproof castings shall be East Jordan casting 1022-2 WT with a heavy duty lid stamped "SANITARY SEWER" or approved equal.

TESTING

1.) Manholes shall be air tested for leakage in accordance with ASTM C1244-93, standard test method for concrete sewer manholes by the negative air pressure (vacuum) test.
   a. Installation and operation of vacuum equipment and indicating devices must be in accordance with manufacturer's recommendations and performance specifications which have been provided by the manufacturer and accepted by the engineer.
   b. With the vacuum tester set in place:
      1. Using a plate testing device, connect the vacuum pump to the outlet port with the valve open.
      2. Draw a vacuum of ten (10) inches of hg. And close the valve.
   c. Accepted standards for leakage will be established from the elapsed time for a negative pressure change from ten (10) inches to nine (9) inches of mercury. The maximum allowable leakage rate for a four (4) foot diameter manhole must be in accordance with the following:

Minimum elapsed time for a manhole depth pressure change of 1 inch hg	
10 feet or less	60 seconds
>10 feet but <15 feet	75 seconds
>15 feet	90 seconds

   For manholes five (5) feet in diameter, add an additional fifteen (15) seconds and for manholes six (6) feet in diameter, add an additional thirty (30) seconds to the time requirements for four (4) foot diameter manholes.
   d. If manhole joint sealants are pulled out during the vacuum test, the manhole must be disassembled and the joint sealants replaced.
   e. Manholes will be subject to visual inspection with all visual leaks being repaired.
2.) All sanitary sewer lines upon completion will be required to pass a low pressure air test. The test shall be conducted according to ASTM 1417-92, and witnessed by a representative of the Town of McCordsville. The testing shall be in accordance with Table 1. Add 0.5 psig for each foot of water above the sewer line being tested.
3.) Deflection tests shall be performed on all flexible* pipe after the final backfill has been in place at least 30 days. No pipe shall exceed a vertical deflection of 5% deflection test results. (*the following are considered non-flexible pipes: concrete pipe, ductile iron pipe, and cast iron pipe). The deflection test shall be performed with a nine-point mandrel. Proving rings shall be available.
4.) All sanitary sewer lines upon completion and six months prior to the expiration of the maintenance bond will be televised. The sanitary sewer lines will also be cleaned if necessary in the judgment of the Town's representative after observing the televising tapes.
5.) All testing shall be observed by a representative of the Town of McCordsville.

OIL/GREASE TRAP REQUIREMENTS

1.) All new commercial of industrial entities, which either generate and/or waste oil, grease or their by-products, shall construct a 1,000 gallon (minimum) grease trap. The design engineer shall submit detailed calculations for size justification of the trap. Calculations shall be accompanied with references, specifically denoted origin of sizing calculation method.
2.) Toilets, urinals and other similar fixtures shall not waste through the grease interceptor. All other waste shall enter through the grease interceptor, through the inlet pipe only.
3.) The grease interceptor and grease trap shall be sized such that it is easily accessible at all times for inspection/sampling and cleaning. The grease trap shall have a minimum of two (2) compartments with fittings designed for grease interception.
4.) The oil/ grease trap shall be located outside the building and at a distance far enough to allow soluble grease/oil to become insoluble.

SPECIFICATION TIME REQUIRED FOR A 0.5 PSIG PRESSURE DROP
FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015

1 Pipe Diameter (in.)	2 Minimum Time (sec)	3 Length For Minimum Time (ft)	4 Time for Longer Length (sec)	Specification Time for Length (L) Shown (min:sec)							
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
8	3:47	298	0.760 L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187 L	4:43	4:43	4:43	4:56	5:56	6:55	7:54	8:54
12	5:40	199	1.709 L	5:40	5:40	5:42	7:07	8:32	9:58	11:23	12:49
15	7:05	159	2.671 L	7:05	7:05	8:54	11:07	13:21	15:34	17:48	20:02
18	8:30	133	3.846 L	8:30	9:37	12:49	16:02	19:14	22:26	25:38	28:51
21	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:23	100	6.846 L	11:23	17:07	22:49	28:31	34:14	39:56	45:38	51:21

REVISIONS		
REV. NO.	DESCRIPTION	DATE

MARK J. WITSMAN REGISTERED No. 10100264 STATE OF INDIANA PROFESSIONAL ENGINEER

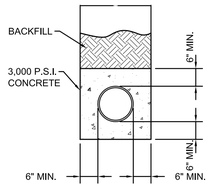
RECOMMEND FOR APPROVAL	DESIGN ENGINEER	7/12/05 DATE
APPROVED	PUBLIC WORKS COMMISIONER	7/12/05 DATE
APPROVED	TOWN COUNCIL PRESIDENT	7/12/05 DATE

TOWN OF McCORDSVILLE

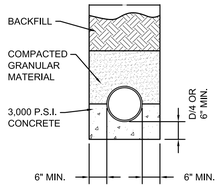
TOWN STANDARDS SANITARY SEWER SPECIFICATIONS

SHEET 8 OF 10

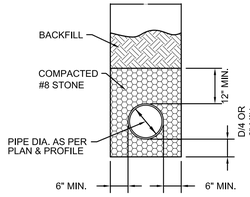
1. CONCRETE OR STONE BEDDING TO EXTEND TO UNDISTURBED TRENCH WALLS.
2. FOR PIPE DIA., REFER TO PLAN AND PROFILES.



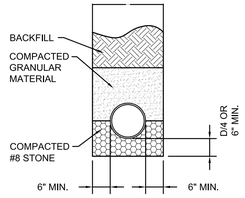
CONCRETE ENCASEMENT
CLASS "A-A"



CONCRETE CRADLE
CLASS "A"



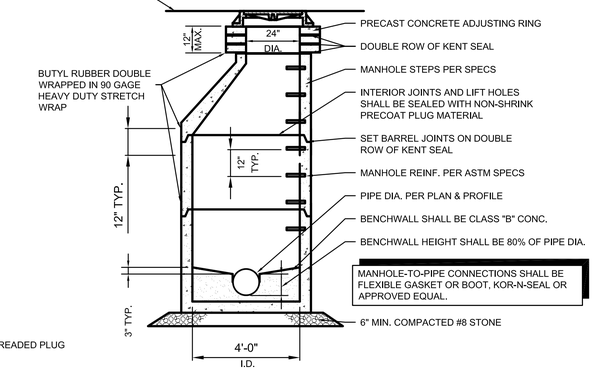
FLEXIBLE PIPE BEDDING
TYP. PVC



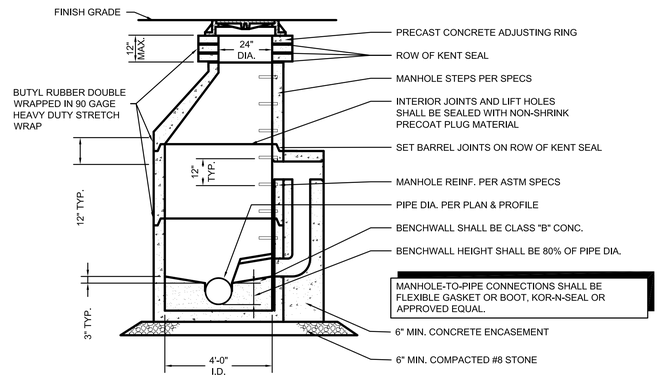
RIGID PIPE BEDDING
TYP. DI

PIPE BEDDING DETAILS
NOT TO SCALE

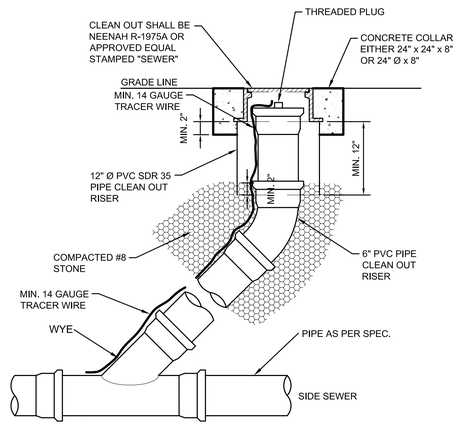
CASTING SHALL BE EITHER SELF-SEALING OR WATERTIGHT, (SEE PLAN & PROFILE SHEETS FOR CASTING TYPE). LIDS SHALL BE STAMPED "SANITARY SEWER" AND HAVE CLOSED PICKHOLES. FRAME SHALL BE SET ON ROW OF KENT SEAL. SEE MANHOLE SPECIFICATIONS FOR APPROVED CASTINGS.



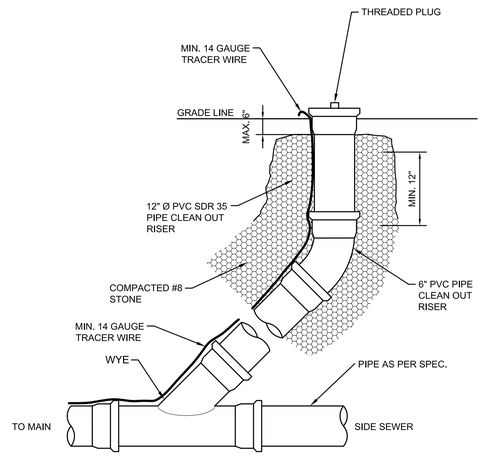
SANITARY MANHOLE
NOT TO SCALE



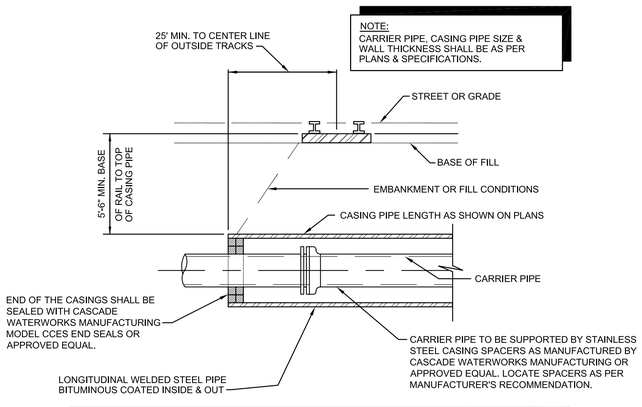
DROP SANITARY MANHOLE
NOT TO SCALE



CLEAN OUT TYPE II
SCALE: NONE

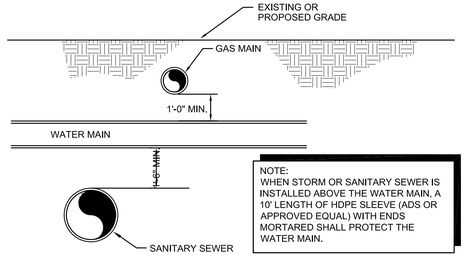


CLEAN OUT TYPE I
SCALE: NONE

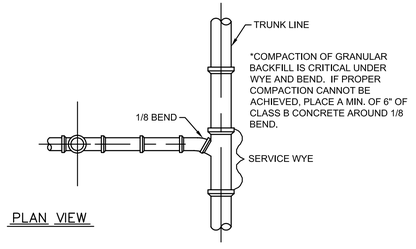


NOTE
1. ALL WORK SHALL BE IN ACCORDANCE WITH THE I.N.D.O.T. STANDARD SPECIFICATIONS. WHERE NO PROCEDURES FOR A PARTICULAR PORTION OF THE WORK ARE GIVEN, THE RECOMMENDATIONS OF THE HORIZONTAL EARTH BORING AND PIPE JACKING MANUAL OR THE AMERICAN RAILWAY ENGINEERING ASSOCIATION SHALL BE FOLLOWED.

TYPICAL RAILROAD AND HIGHWAY BORING DETAIL
NOT TO SCALE

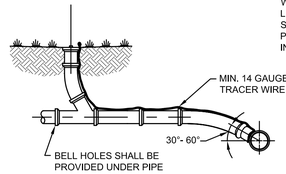


TYPICAL UTILITY CROSSING
NOT TO SCALE



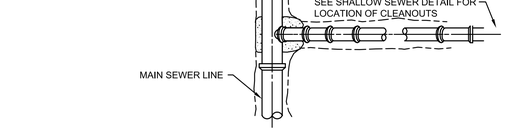
PLAN VIEW

NOTE: A MINIMUM 6" DIA PIPE TYPE I CLEAN OUT SHALL BE INSTALLED 3' AWAY FROM BUILDING. A THREADED PLUG SHALL BE USED TO ENSURE 100% WATERTIGHTNESS. FOR LATERALS GREATER THAN 100 LF AS MEASURED ALONG THE PIPE, TYPE II CLEAN OUTS SHALL BE INSTALLED AT THE STREET RIGHT-OF-WAY OR PROPERTY LINE AS APPLICABLE AND AT 100 FOOT INCREMENTS AS APPROPRIATE.

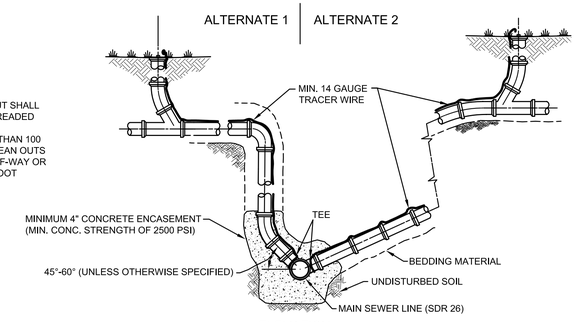


ELEVATION

SERVICE CONNECTION FOR SHALLOW SEWERS
LESS THAN 15' DEEP



PLAN VIEW



ELEVATION

SERVICE CONNECTION FOR DEEP SEWERS (2 ALTERNATIVES)
15' DEEP AND OVER

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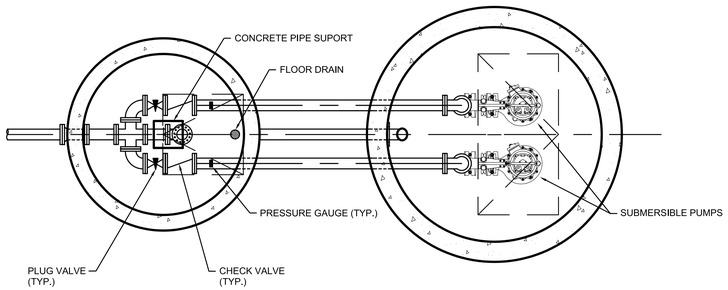
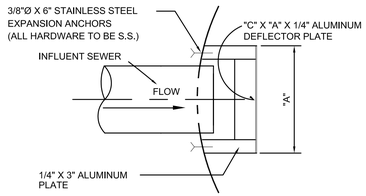
TOWN OF McCORDSVILLE

TOWN STANDARDS SANITARY SEWER DETAILS

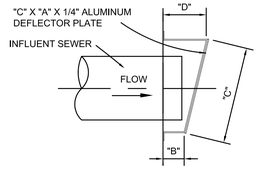
SHEET 9 OF 10



LIFT STATION - PLAN
SCALE: NONE



PLAN

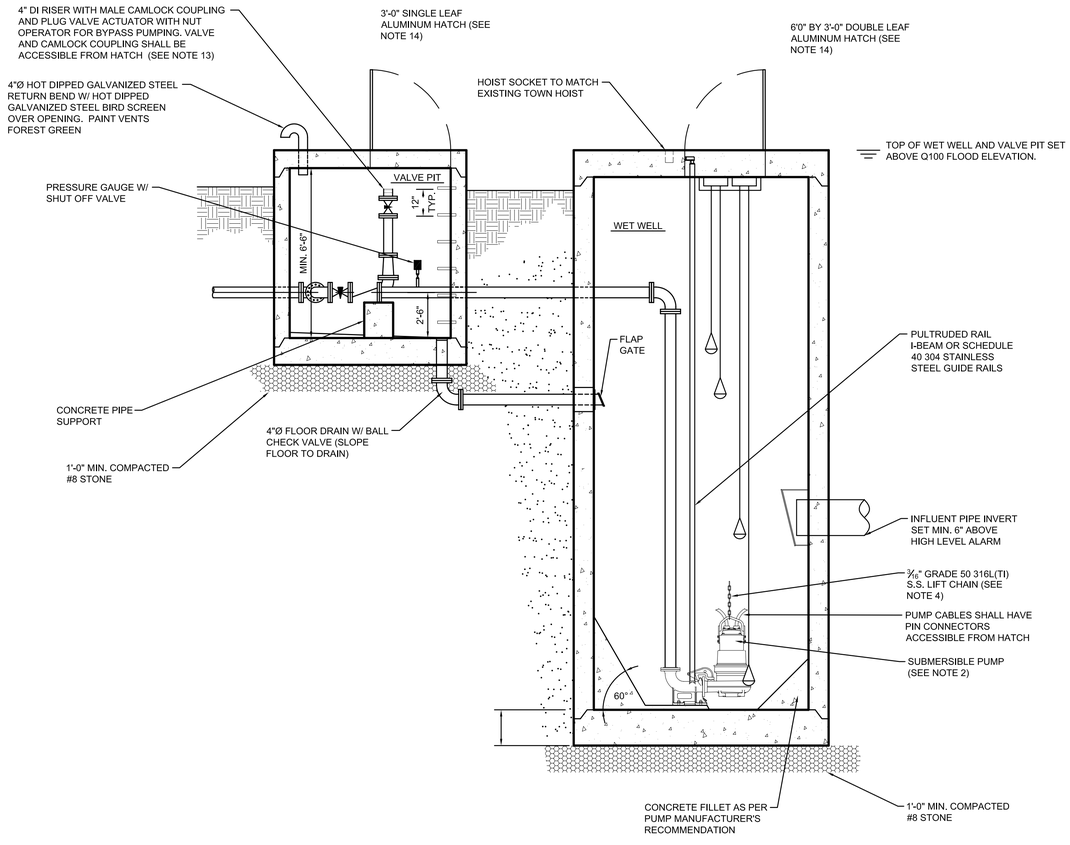


SECTION

ALL SURFACES CONTACTING CONCRETE SHALL HAVE A BITUMINOUS COATING

MATERIALS SCHEDULE				
INFLUENT SEWER I.D.	"A"	"B"	"C"	"D"
6"-10"Ø	19"	5"	13"	10"
10"-14"Ø	23"	5"	18"	10"
14"-18"Ø	27"	5"	23"	10"
18"-22"Ø	31"	5"	28"	10"
22"-26"Ø	35"	5"	37"	10"

DEFLECTION PLATE DETAILS
SCALE: NONE



LIFT STATION SECTION
SCALE: NONE

GENERAL NOTES

1.) Actual lift station dimensions, control settings, & pump selection to be indicated by the design engineer's certification sheet.

2.) Pumps "A" and "B" shall be identical, centrifugal, submersible, solids handling, non-clog design capable of handling 3" sphere solids, fibrous material, sludge, and material found in typical raw sewage. Fit replaceable bronze wear ring to volute. Pumps shall be Flygt, Hydromatic or approved equal. Manufacturer shall warrant the pumps for five years after installation.

All mating surfaces intended to be watertight shall be machined and fitted with nitrile rubber o-rings with sealing complete when metal-to-metal contact is made, resulting in controlled compression of o-rings without specific torque limit. Fasteners shall be 316 S.S.

Mechanical shaft seal system running in an oil reservoir shall have separate, constantly lubricated lapped seal faces. The lower seal unit between media and oil reservoir shall consist of one stationary seat and one rotating ring held in place by its own spring. The rotating seat ring and the stationary seat ring shall be made of Tungsten-Carbide. The lower seal shall be removable without disassembling the seal chamber. The upper seal between seal chamber and motor shall be of the same design with its own spring. Seals shall be maintenance free, but shall be easily inspectable.

The lift station control panel shall be stainless steel construction, NEMA 4X rating mounted on an aluminum pedestal. The control cabinet shall house the following controls and indication: Warning lights for each pump, Indicator lights, Common alarm, H-O-A switches, Silence button, Pump alternator, Warning reset buttons, Relays, Heater, Surge protection, Phase monitoring, Hour meters, and a GFI 110 volt, single phase convenience outlet.
Lower seal failure alarm shall be engaged by seal failure sensor provided in the seal chamber, which senses water intrusion through lower seal. A mini-float in the motor chamber which signals pump shutdown and alarm upon water intrusion through upper seal may be acceptable when approved by Town of McCordsville.

Over temperature alarm and pump shutdown shall be engaged by heat sensor attached to the motor windings. Motor winding and stator lead insulation shall be class F with maximum temperature capability of 155 degree C. Housing shall be filled with High-Dielectric Oil. Air filled housing may be acceptable when approved by Town of McCordsville.
Pump and motor shall be designed to operate partially or fully submerged in pumped media without the use of cooling jackets.

Rail system shall enable the easy removal of the pump without the need for a person to enter the wet well. A non-corrosive FRP I-beam or schedule 40 stainless steel guide rails shall be provided for each pump. The guide rail shall be supported at the bottom by the discharge elbow, aligned perfectly plumb and securely affixed to access frame. One intermediate guide rail support is required for each 9' of guide rail length.

3.) Check valve shall use packing material to seal the integral shaft or hinge pin. O-ring side plugs and O-ring shall not be used to seal integral shaft or hinge pin. Check valve shall be provided with bolted covers for easy access to the discs and shall be outside adjustable weight & Lever and shall be Clow F-5382 or approved by Town of McCordsville.

4.) Provide sufficient lift chain, float mounting cable, and pump power & control cable to enable non-spliced field adjustment. 304L stainless steel lift chain w/ 4:1 saftey factor shall have a minimum workload limit of 1100 pounds. Pump power & control cables shall be suitable for submersible pump applications and this shall be indicated by a code/legend permanently embossed on the cable. Provide sleve and pin on pump control cable and locate on bracket near hatch.

5.) Plug valve shall be hand lever operated and shall be Dezurik Fig. 118, Clow F-5412, or Town of McCordsville approved equal.

6.) Pressure gauge shall be Trerice Model 450 LFB or Town of McCordsville approved equal. Drill & tap run of pipe to install pressure gauge.

7.) Piping not within 2 feet of wet well and valve pit shall be DI Class 53, PVC ASTM D2241 SDR 21, PVC AWWA C900 or C905, or Town of McCordsville approved equal.

8.) Piping in and within 2 feet of wet well and valve pit shall be class 53 flanged ductile iron pipe.

9.) Piping, valves, and fittings in wet well and valve pit shall be factory primed Tnemec series 140 - 1211 to a dry film thickness of 5.0 to 11.0 mils and shall be field painted with Tnemec series 69 to a dry film thickness of 5.0 to 6.0 mils.

10.) Lift station and valve pit manholes shall be pre-cast concrete in accordance with ASTM C-478, with rubber gaskets equal to ASTM-443 with double row of 1/2"' Hamilton Kent-Seal Extrudable Preformed Gasket material or Town of McCordsville approved equal. Exterior joints to have butyl rubber applied over the joint to a minimum of 1'-0" above and below the joint. Interior joints are to be sealed with non-shrink grout or precoat plug material.

11.) Valve pit shall be constructed on undisturbed soil or compacted granular material compacted with ½ inch nominal size to 95% standard proctor density.

12.) Horizontal projections from precast integral base and riser may be required to enable the weight of the vertical soil ring above the projection to resist buoyancy forces. See design engineer's certification sheet.

13.) Camlock flanged coupler and dust cap shall be used within valve vault. Camlock coupling and eccentric plug valve on by-pass line shall be 6" diameter with transition to force main size occurring with concentric reducer placed on top of base elbow. Fix operating nut for eccentric plug in vertical position to enable wrench operation from surface. Layout of all valve vault fittings and equipment to be based upon by-pass line being up close to hatch opening as shown.

14.) Aluminum hatches shall be Bilco, Halliday or Town of McCordsville approved equal. Leaf shall be ¼" aluminum diamond plate live load rated to 300PSF. Access frames and covers shall be 1/4 inch thick one-piece, mill finish, extruded aluminum frame, incorporating a continuous concrete anchor. All surfaces contacting concrete shall have a bituminous coating. Hatch shall be provided with type 316 S.S. hardware throughout, compression spring operators, automatic hold-open arm with release handle, and non-corrosive locking bar used in conjunction with a Town of McCordsville supplied padlock.

15.) Sewer connection to wet well shall be KOR-N-SEAL, A-LOK, DURA-SEAL, or Town of McCordsville approved equal.

16.) Force main penetrations of wet well shall be KOR-N-SEAL, A-LOK, DURA-SEAL, or Town of McCordsville approved equal.

17.) Automatic pump control system shall include all necessary items and appurtenances, which might normally be considered a part of a complete system. System shall be supplied by one manufacturer, shall be factory assembled, wired and tested, and shall be per complete electrical drawings and instructions. Major components and sub-assemblies shall be identified as function with laminated, engraved, bakelite nameplates. System shall be built in a NEMA 4X S.S. enclosure suitable for the specified horsepower and voltage of the pumps. The outer door of the panel shall be a hinged dead front with provisions for padlocking. Inside shall be a separate hinged panel to protect all electrical components, H-O-A switches, run lights, circuit breakers, etc., mounted such that only the faces protrude through said panel with no wiring fixed to said panel. The manufacturer shall warrant the control center for one year after installation covering 100% parts and labor.

Provide the services of a factory-trained, qualified representative to inspect, to adjust, and to place the system in trouble-free operation and to instruct the operating personnel in the proper operation and care of the system.

All major components of control center shall be available from local sources. Pump manufacturer shall accept the control center in writing to ensure unit responsibility and warranty.

Provide a disconnect switch housed in a separate NEMA 4X S.S. enclosure with external operation handle capable of being locked in the "on" position. Provide 480 volt, 200 amp, 4 wire weatherproof receptacle, Crouse Hindes AR204 or equal, to match plug on existing portable generator.

Provide a Omni-site.net Crystall WM housed within the NEMA 4X control panel.

An incoming power terminal block shall be located at the bottom of the control enclosure. A lightning arrestor shall be provided at the terminal block and connected to each line of the incoming side of the power input terminals. A single main fusible/breaker disconnect switch of adequate size to provide power for control, operation, and appurtenant components shall be provided. Provide a circuit breaker and magnetic starter with each leg manual reset overload protected for each pump. Starters shall have auxiliary contacts on 3Φ applications to operate both pumps simultaneously. Provide a circuit breaker and transformer to power the control panel with 1Φ, 115 volt service for all control functions. Provide a green "run" light and H-O-A switch to enable field connections.

Materials and installation of the required equipment grounding shall be in accordance with NEC section 250-83(c). All wiring shall have not less than 600 volt insulation. Wiring and buss shall be in accordance with NEC, state, local, and NEMA standards. All wiring shall be color coded.

Minimum 4" diameter, schedule 40 conduit shall be provided from wet well to control panel enabling pump power & sensor cables and float switch cables to be easily pulled. Seal conduit at control panel to prevent sewer gases from entering. All conduits, fittings, or connections shall enter from the bottom of enclosures.

Sump level rise to lead pump run float causes lead pump to operate. Lead pump operating and sump level falling to pumps off float causes lead pump to shut off. Lead pump operating and sump level rising to lag pump run float causes lag pump to operate. Lag pump operating and sump level falling to pumps off float causes both pumps to shut off. Sump level rise to high level alarm causes high level alarm to operate. An alternating relay shall be provided to cause pumps to alternate whenever pumps off float is de-energized. If one pump fails for any reason, the remaining pump shall operate upon sump level rise to lag pump run float. An hour meter shall be provided for each pump to record the elapsed operating time of each pump.

18.) Four manuals shall be presented to the owner, which shall include the following minimum information: 1) Operation instructions, 2) Maintenance instructions, 3) Recommended spare parts list, 4) Lubrication schedule, 5) Structural diagrams, 6) As-built wiring diagrams, & 7) Bill of materials.

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TOWN OF McCORDSVILLE

TOWN STANDARDS SANITARY SEWER LIFT STATION STANDARDS & GUIDELINES

SHEET 10 OF 10