MUNSTER CHURCH

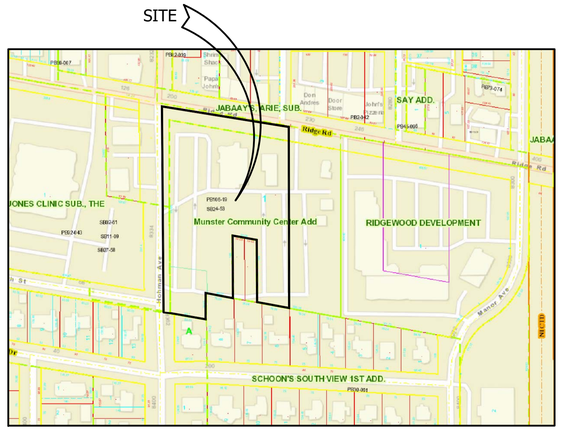
BUILDING ADDITION, 214 RIDGE ROAD

TOWN OF MUNSTER, LAKE COUNTY, INDIANA

INDEX	
PAGE	DESCRIPTION
COVER	TITLE PAGE
C-1.0	EXISTING TOPOGRAPHY & UTILITIES
C-1.1	DEMOLITION PLAN
C-2.0	SITE PLAN
C-3.0	UTILITIES PLAN
C-4.0 TO C-4.1	DETAILS AND SPECIFICATIONS
C-5.0	STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
C-6.0 TO C-6.1	SWPPP DETAILS & SPECIFICATIONS
1 OF 1	LANDSCAPING PLAN

DESCRIPTION:

LOT 1, MUNSTER COMMUNITY CENTER ADDITION, A PLANNED UNIT DEVELOPMENT IN THE TOWN OF MUNSTER, LAKE COUNTY, INDIANA AS RECORDED IN PLAT BOOK 106, PAGE 19 IN THE OFFICE OF THE RECORDER OF LAKE COUNTY, INDIANA



VICINITY MAP

NOT TO SCALE

NORTH

Indiana 811

Know what's below. Call before you dig.

"IT'S THE LAW"

CALL 2 WORKING DAYS BEFORE YOU DIG

811 or 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.

CLIENT/DEVELOPER:
c/o Pastor Jim Hollendoner
Munster Church
214 Ridge Road
Munster, Indiana 46321

ENGINEER:
Torrenga Engineering, Inc.
907 Ridge Road
Munster, Indiana 46321
(219) 836-8918

NOTES:
1. TOTAL SITE AREA = 4.63± ACRES (201,737± S.F.)
2. THIS PROPERTY IS LOCATED IN FLOOD ZONE "X" AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS PER FLOOD INSURANCE RATE MAP (FIRM) FOR LAKE COUNTY, INDIANA AND INCORPORATED AREAS, PANEL 117 OF 480, MAP NUMBER 18089C0117E, EFFECTIVE DATE JAN. 18, 2012.
3. DEVELOPER:
   MUNSTER CHURCH
   214 RIDGE ROAD
   MUNSTER, INDIANA 46321
4. ALL VERTICAL DATUM IS BASED ON NAVD88.
5. HYDROLOGIC UNIT CODES: 07120003030060 LITTLE CALUMET RIVER – INDIANA/ILLINOIS LINE
6. LOCATION:
   LATITUDE – 41°33'45" N
   LONGITUDE – 87°31'18" W
7. CURRENT ZONING: CZ, CIVIC ZONE
8. THE CONTRACTOR IS RESPONSIBLE TO VERIFY ALL EXISTING SITE CONDITIONS AND SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND ALL PROPOSED IMPROVEMENTS IN THE CONSTRUCTION DRAWINGS.
10. A PRECONSTRUCTION CONFERENCE SHALL TAKE PLACE PRIOR TO ANY CONSTRUCTION WITH THE TOWN OF MUNSTER, CONTRACTOR AND REPRESENTATIVES OF MUNSTER CHURCH IN ATTENDANCE.

Date and Revisions:

NO.	DATE	DESCRIPTION	BY
5	07-08-2022	FIFTH SUBMITTAL	DCT
4	07-06-2022	FOURTH SUBMITTAL	DCT
3	06-28-2022	THIRD SUBMITTAL	DCT
2	06-06-2022	SECOND SUBMITTAL	DCT
1	04-22-2022	PRIMARY SUBMITTAL	DCT/EM

DRAWING SET PROGRESS:

- [x] ENGINEERING PLAN - FOR REVIEW / APPROVAL
- [ ] FINAL ENGINEERING - FOR CONSTRUCTION

CERTIFIED BY: DONALD C. TORRENGA
P.E. # 19868

DONALD C. TORRENGA REGISTERED No. 19868 STATE OF INDIANA PROFESSIONAL ENGINEER

Donald C. Torrenga

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MUNSTER CHURCH
~ TOPOGRAPHY & EXISTING UTILITIES ~

DESCRIPTION:

LOT 1, MUNSTER COMMUNITY CENTER ADDITION, A PLANNED UNIT DEVELOPMENT IN THE TOWN OF MUNSTER, LAKE COUNTY, INDIANA AS RECORDED IN PLAT BOOK 106, PAGE 19 IN THE OFFICE OF THE RECORDER OF LAKE COUNTY, INDIANA

LEGEND
EXISTING

- WATER MAIN
- WATER VALVE
- FIRE HYDRANT
- SANITARY SEWER
- SANITARY MH
- STORM SEWER
- STORM MH/CB/INL
- GRADES
- STREET LIGHT
- CONTOUR
- OVERHEAD ELECTRIC & TELEPHONE WIRES
- UNDERGROUND GAS LINES

NOTE:

1. THE EXISTING TOPOGRAPHY WAS TAKEN FROM TOPOGRAHIC SURVEYS PERFORMED BY TORRENGA SURVEYING, LLC, 907 RIDGE ROAD, MUNSTER, IN 46321
2. ALL VERTICAL DATUM IS BASED ON NAVD 88.
3. THE LOCATION OF EXISTING WATER MAIN SERVICE LINES TO BE VERIFIED BY THE CONTRACTOR.

EXISTING PARKING SPACE COUNT

STANDARD SPACES = 217
HANDICAP SPACES = 11
TOTAL PARKING SPACE COUNT = 228

BENCHMARK TABLE		
BENCHMARK NUMBER	DESCRITPION AND LOCATION	ELEVATION
1	N. RIM EXISTING DRAINAGE STRUCTURE IN EAST PARKING LOT	626.87
2	N. RIM EXISTING DRAINAGE STRUCTURE IN EAST PARKING LOT	626.21
3	N. RIM EXISTING DRAINAGE STRUCTURE IN EAST PARKING LOT	625.40

DONALD C. TORRENGA REGISTERED No. 19868 STATE OF INDIANA PROFESSIONAL ENGINEER

NORTH
GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel. No.: (219) 836-8918
website: www.torrenga.com

MUNSTER CHURCH
214 RIDGE ROAD, MUNSTER, IN 46321
TOPOGRAPHY & EXISTING UTILITIES

06-06-2022 REVISIONS:
DATE: 04-22-2022

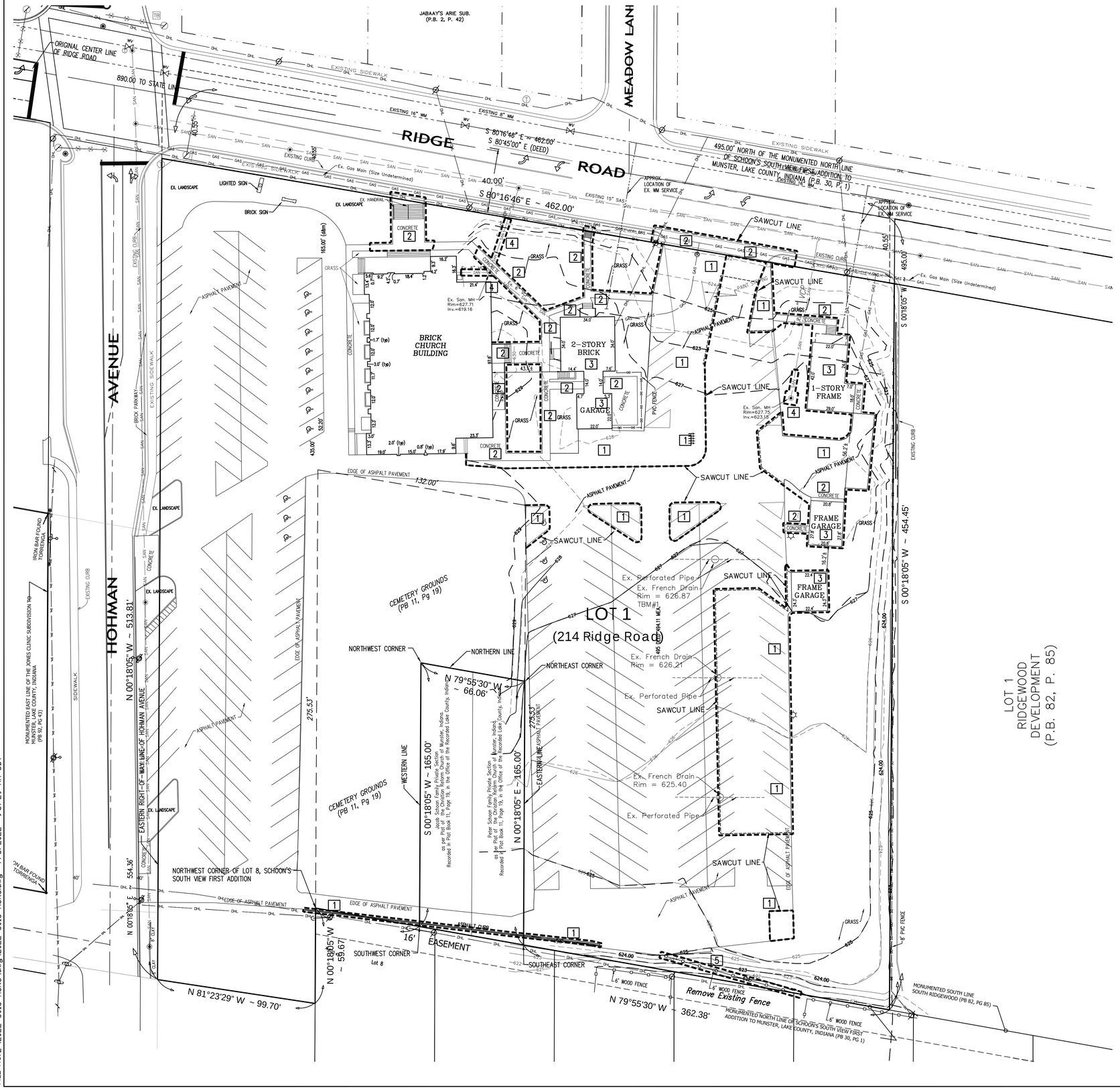
CLIENT:
C/o Pastor Jim Hollendoner
Munster Church
214 Ridge Road
Munster, IN 46321

JOB NO: 2022-5015
SCALE: 1" = 30'

SHEET
C-1.0

FILE NO: Z:\2022-5015 MCRC\dwg\2022-5015 MCRC.dwg 7/5/2022 10:12:20 AM CDT

MUNSTER CHURCH
~ DEMOLITION PLAN ~



DEMOLITION NOTES

1. REMOVE ASPHALT PAVEMENT/ASPHALT CURB
2. REMOVE CONCRETE PAVEMENT/SIDEWALK/CURB/STEPS
3. REMOVE STRUCTURE
4. REMOVE MH & PIPE
5. REMOVE FENCE

THE CONTRACTOR SHALL REMOVE ALL FENCES, TREES AND SHRUBS THAT INTERFERE WITH THE PROPOSED BUILDING AND PARLING LOT IMPROVEMENTS.

NOTES:

1. THE CONTRACTOR IS RESPONSIBLE TO VERIFY ALL EXISTING SITE CONDITIONS AND SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND ALL PROPOSED IMPROVEMENTS IN THE CONSTRUCTION DRAWINGS.

2. THE CONTRACTOR SHALL REMOVE THE EXISTING WATER SERVICE, SANITARY SERVICE AND STORM SERVICE (IF EXISTING) TO THE RESIDENTIAL HOMES BEING DEMOLISHED. THE DISCONNECT SHALL BE DONE IN ACCORDANCE WITH THE DIRECTION OF THE TOWN OF MUNSTER PUBLIC WORKS AND WATER DEPARTMENT.

3. ALL SERVICE LINES (ELECTRIC, GAS AND CABLE TV) SHALL BE DISCONNECTED AND REMOVED. THE METHOD OF REMOVAL SHALL BE MADE IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANY.

4. THE CONTRACTOR SHALL REMOVE ALL FENCES, TREES AND SHRUBS THAT INTERFERE WITH THE PROPOSED BUILDING AND PARKING LOT IMPROVEMENTS.

5. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ALL FOUNDATIONS AND SHALL BACKFILL AND COMPACT ANY BASEMENT AREAS WITH ACCEPTABLE STURCTURAL FILL MATERIAL.

DONALD C. TORRENGA REGISTERED No. 19868 STATE OF INDIANA PROFESSIONAL ENGINEER

NORTH
GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

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MUNSTER CHURCH
214 RIDGE ROAD, MUNSTER, IN 46321
DEMOLITION PLAN

REVISIONS:	DATE: 04-22-2022
07-08-2022	
07-06-2022	
06-06-2022	

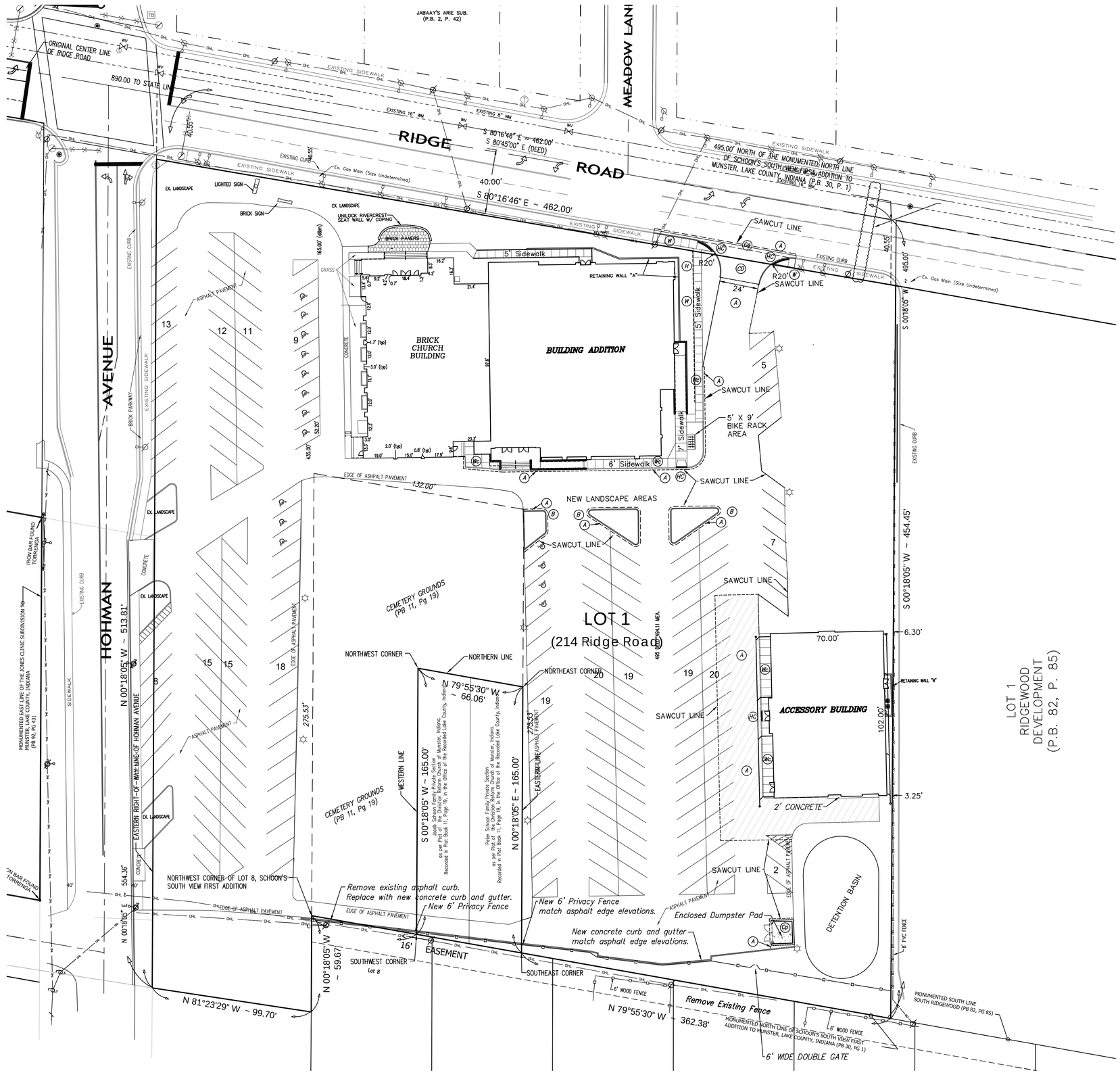
CLIENT:
c/o Pastor Jim Hollendoner
Munster Church
Munster, IN 46321

JOB NO: 2022-5015
SCALE: 1" = 30'

SHEET
C-1.1

FILE NO: Z:\2022-5015 MCRC\dwg\2022-5015 MCRC.dwg 7/8/2022 9:37:29 AM CDT

MUNSTER CHURCH
~ SITE PLAN ~



LEGEND:

- (A) PROPOSED ASPHALT PAVEMENT /PAVEMENT PATCH
- (B) BARRIER CURB
- (HC) HANDICAP ACCESS
- (W) CONCRETE SIDEWALK
- (Wc) CONCRETE SIDEWALK & CURB
- (CD) CONCRETE DRIVE APPROACH
- (Cg) CONCRETE CURB GUTTER SECTION
- (H) HAND RAIL/ RAILING
- (Cp) CONCRETE DUMPSTER PAD
- PROPOSED STREET LIGHT
- PROPOSED ASPHALT

NOTES:
1. NEW ACCESSORY BUILDING ROOF PITCH TO BE 8:12

EXISTING PARKING SPACE COUNT	REQUIRED PARKING SPACE COUNT
STANDARD SPACES = 217	SANCTUARY:
HANDICAP SPACES = 11	409 SEATS / 3 = 136 PARKING SPACES
TOTAL PARKING SPACE COUNT = 228	MULTI PURPOSE-ROOM:
PROPOSED PARKING SPACE COUNT	222 SEATS / 3 = 74 PARKING SPACES
STANDARD SPACES = 196	TOTAL PARKING SPACE COUNT = 210
HANDICAP SPACES = 15	
TOTAL PARKING SPACE COUNT =211	

HANDICAP RAMP NOTES:

1) ALL EXISTING HANDICAP RAMPS THAT ARE NOT ADA COMPATIBLE SHALL BE REMOVED AND REPLACED.

2) ALL SIDEWALK/PATH CROSSINGS REQUIRE DETECTABLE WARNING ELEMENTS WITH ADA COMPLIANT RAMPS TO BE INSTALLED.

DONALD C. TORRENGA REGISTERED No. 19868 STATE OF INDIANA PROFESSIONAL ENGINEER

NORTH
GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

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MUNSTER CHRISTIAN REFORMED CHURCH
214 RIDGE ROAD, MUNSTER, IN 46321

SITE PLAN

REVISIONS:	DATE: 04-22-2022
07-08-2022	
07-05-2022	
06-28-2022	
06-06-2022	

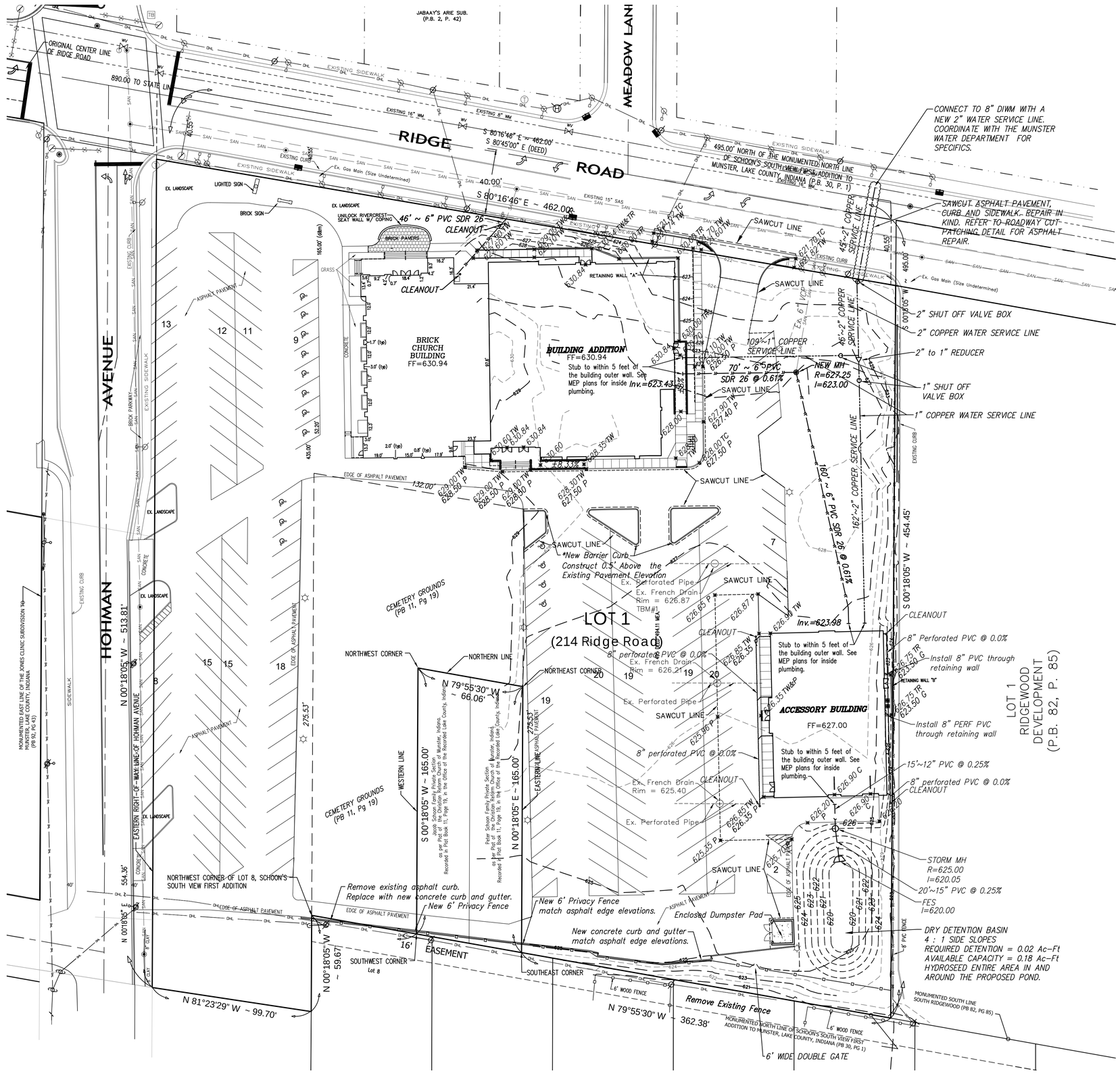
CLIENT:
c/o Pastor Jim Hollendoner
Munster Church
214 Ridge Road
Munster, IN 46321

JOB NO: 2022-5015
SCALE: 1"=30'

SHEET
C-2.0

FILE NO:Z:\2022-5015 MCRC\dwg\2022-5015 MCRC.dwg 7/8/2022 9:37:29 AM CDT

MUNSTER CHURCH
~ UTILITIES PLAN ~



LEGEND
EXISTING

- WATER MAIN
- WV — WATER VALVE
- FIRE HYDRANT
- SAN — SANITARY SEWER
- SANITARY MH
- ST — STORM SEWER
- STORM MH/CB/INL
- GRADES
- STREET LIGHT
- 000 — CONTOUR
- OHL — OVERHEAD ELECTRIC & TELEPHONE W
- GAS — UNDERGROUND GAS LINES

LEGEND
PROPOSED

- WATER MAIN
- STREET LIGHT
- SANITARY SEWER
- SANITARY MANHOLE
- STORM SEWER
- STORM MH/CB/INL
- DRAINAGE ARROWS
- x 100.00 — GRADES
- 000 — CONTOUR
- TW — TOP OF WALK
- TC — TOP OF CURB
- TR — TOP OF RETAINING WALL
- P — PAVEMENT
- C — CONCRETE
- G — GROUND

NOTES:

1. THE CONTRACTOR IS RESPONSIBLE TO VERIFY ALL EXISTING SITE CONDITIONS AND SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND ALL PROPOSED IMPROVEMENTS IN THE CONSTRUCTION DRAWINGS.
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4. THE CONTRACTOR SHALL REMOVE ALL FENCES, TREES AND SHRUBS THAT INTERFERE WITH THE PROPOSED BUILDING AND PARKING LOT IMPROVEMENTS.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ALL FOUNDATIONS AND SHALL BACKFILL AND COMPACT ANY BASEMENT AREAS WITH ACCEPTABLE STURCTURAL FILL MATERIAL.
6. THE CONTRACTOR SHALL REFER TO THE SITE LIGHTING PLAN PREPARED BY KSA LIGHTING FOR PROPOSED LIGHTING.
7. THE CONTRACTOR SHALL REFER TO THE LANDSCAPING PLAN PREPARED BY K&D LANDSCAPE FOR PROPOSED LANDSCAPE.
8. THE CONTRACTOR SHALL TELEVISE THE EXISTING 6" SANITARY LATERAL CONNECTION TO DETERMINE ITS CONDITION.
9. EXISTING WATER MAIN SERVICE LATERALS ARE TO BE CAPPED AT THE MAIN WITH A FORD ABANDONED CORPORATION CAP AFTER THEY HAVE BEEN REMOVED.
10. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY BREAKS IN THE EXISTING ASPHALT CURB ALONG THE SOUTH EDGE OF THE PARKING LOT.

DONALD C. TORRENGA REGISTERED No. 19868 STATE OF INDIANA PROFESSIONAL ENGINEER

Donald C. Torrenga

NORTH
GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

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MUNSTER CHRISTIAN REFORMED CHURCH
214 RIDGE ROAD, MUNSTER, IN 46321

UTILITIES PLAN

REVISIONS:	DATE: 04-22-2022
07-08-2022	
07-05-2022	
06-28-2022	
06-06-2022	

CLIENT:
c/o Pastor Jim Hollendoner
Munster Church
214 Ridge Road
Munster, IN 46321

JOB NO: 2022-5015
SCALE: 1" = 30'

SHEET
C-3.0

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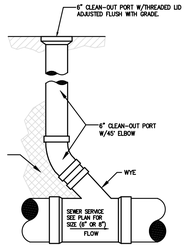
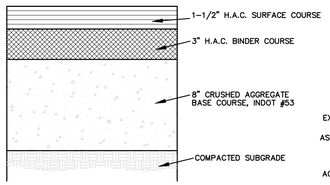
Figure 4.3a
INTERNATIONAL SYMBOL OF ACCESSIBILITY PROPORTIONS
NOT TO SCALE

ACCESSIBILITY SIGNAGE
NOT TO SCALE

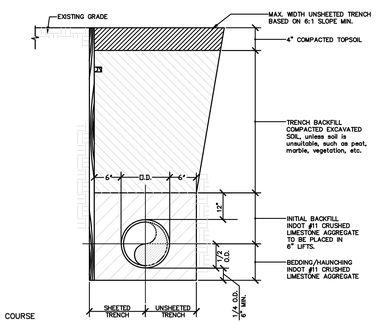


CLEAN-OUT
NOT TO SCALE

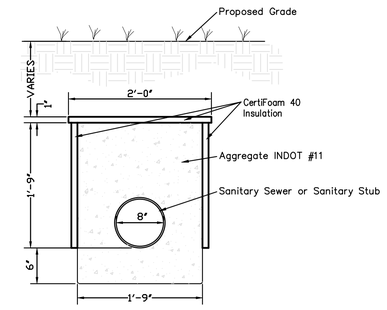


NOTES:
1. PAVEMENT & AGGREGATE THICKNESS IS BASED UPON A CBR RATIO OF 3 AS DETERMINED IN THE SOIL BORING LOGS
2. WHERE FILL IS REQUIRED, SUBGRADE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698 METHOD OF TESTING.

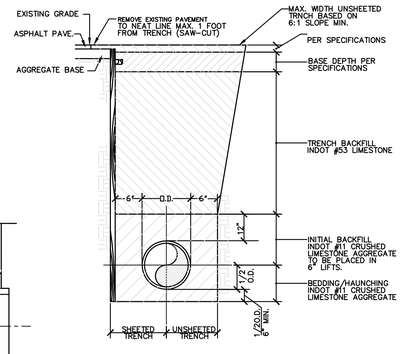
TYPICAL PAVEMENT SECTION
NOT TO SCALE



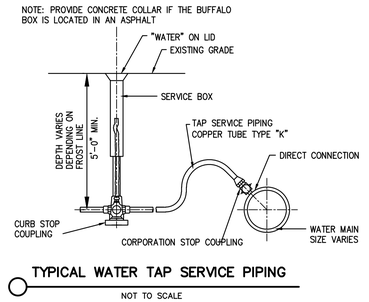
PIPE BEDDING DETAIL FOR TRENCH IN GRASS AREAS
NOT TO SCALE



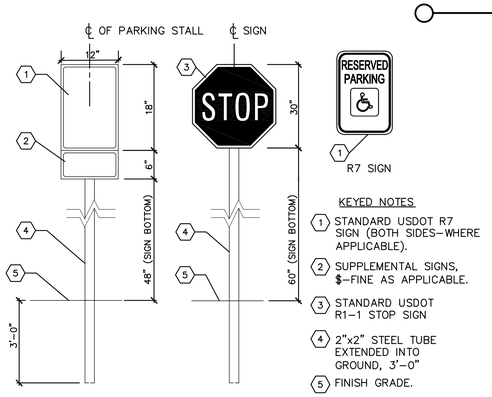
SANITARY PIPE INSULATION DETAIL
NOT TO SCALE



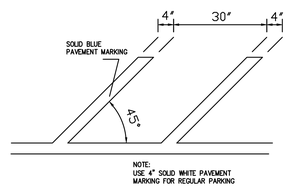
PIPE BEDDING DETAIL FOR TRENCH IN PAVED AREAS
NOT TO SCALE



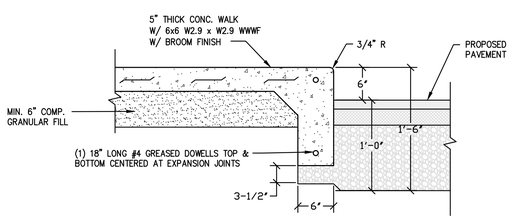
TYPICAL WATER TAP SERVICE PIPING
NOT TO SCALE



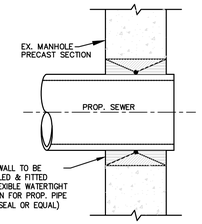
SIGN AND POST (FREE STANDING)
NOT TO SCALE



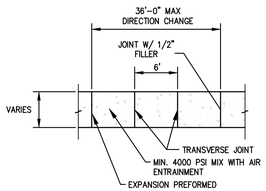
ACCESSIBILITY AND PARKING STRIPING DETAIL
NOT TO SCALE



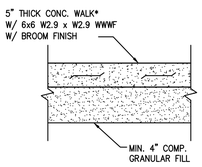
CURB-WALK SECTION
NOT TO SCALE



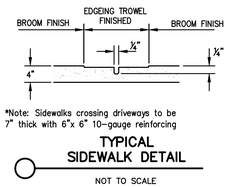
PIPE CONNECTION DETAIL TO EXISTING MANHOLE
NOT TO SCALE



SIDEWALK PLAN

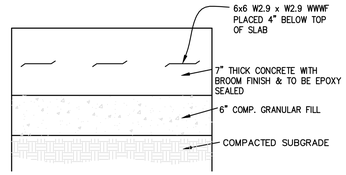


SIDEWALK SECTION

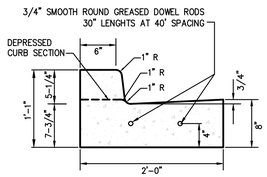


*Note: Sidewalks crossing driveways to be 7" thick with 6"x 6" 10-gauge reinforcing

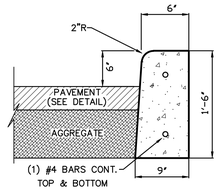
TYPICAL SIDEWALK DETAIL
NOT TO SCALE



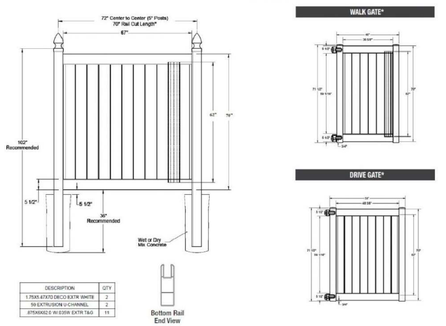
CONCRETE DUMPSTER PAD
SECTION VIEW
NOT TO SCALE



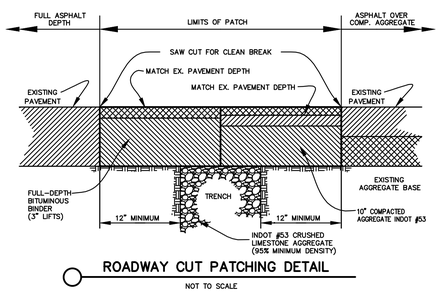
COMBINED CONCRETE HIGH-BACK CURB AND GUTTER
NOT TO SCALE



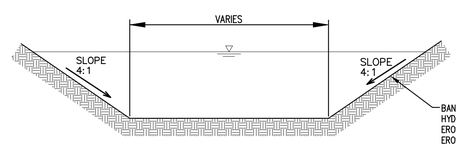
BARRIER CURB DETAIL
NOT TO SCALE



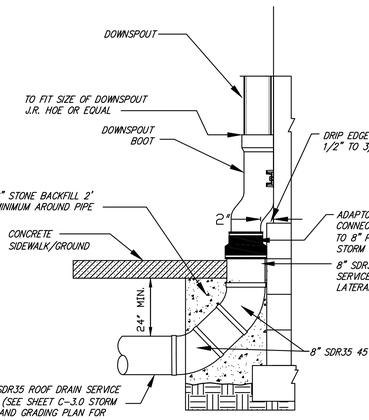
6' H x 6' W • 1¾" X 5½" RAIL SOLID PRIVACY PVC PRIVACY FENCE
NOT TO SCALE



ROADWAY CUT PATCHING DETAIL
NOT TO SCALE



DETENTION AREA CROSS-SECTION
NOT TO SCALE



(DOWN SPOUT)
ROOF DRAIN PIPE CONNECTION
NOT TO SCALE

SPECIFICATIONS FOR STORM SEWERS

1. All work shall be performed in accordance with the Codes, Ordinances and Standards of the Town of Munster, Lake County, Indiana.

2. All storm sewer pipe, branches and fittings shall conform to either of the following: (A) Poly-vinyl chloride SDR 35 (ASTM D-3034) with push on rubber gasket joints (ASTM C-3212 for pipe 15" in diameter or under or: (B) Extra strength vitrified clay pipe (ASTM C-700) with bell and spigot push-on rubber gasket joints (ASTM C-425) or: (C) Reinforced concrete pipe (ASTM C-76) with bell and spigot or tongue and groove push on mastic joints. Class V reinforced concrete pipe shall be used for lines 15" diameter or under and Class III shall be used for lines 18" and over.

3. Gasketed joints shall be used on all storm sewers.

4. Storm sewers 18" to 27" with less than 3' cover shall be Class IV pipe.

5. All storm sewer manholes shall be standard precast concrete units (ASTM C-478) conforming to the standard detail sheet of these plans.

6. All improvements installed across paved or future paved areas shall backfilled with sand or graded stone aggregate to the subgrade.

7. All sewers shall be laid at least 10 feet (3.0m) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. All sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches (46 cm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to prevent damage to the water main. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, the sewer shall be designed and constructed equal to water pipe.

8. The Contractor is responsible for the preparation of "As Built" construction drawings showing actual sizes and lengths of pipe installed (i.e. from manhole to manhole or tee to valve, etc.), location of service taps and any structures added or omitted in comparison with these engineering plans. The Contractor shall supply the Developer (through the Project Engineer) with one set of reproducible original "As-Built" and shall supply the Town of Munster with 2 copies thereof prior to and as a condition of final acceptance.

9. All infrastructure being constructed shall be in accordance with the Town of Munster Proposed Infrastructure Specifications. Any difference between Munster's Specification and these engineering drawings shall be brought to the attention of the Engineer immediately for review.

10. Dumped Rip-Rap will be provided at all end sections, to produce a surface of approximate regularity. The finished surface shall not vary by more than 9 inches and the depth of Rip-Rap shall not be less than 12 inches nor more than 24 inches.

11. No storm sewer manhole, catch basin and inlet shall be within eight (8) feet of a water main as measured from the outside edge of the storm sewer manhole, catch basin and inlet to the outside edge of the water main.

TORRENGA ENGINEERING, INC.
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907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel. No.: (219) 836-8918
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MUNSTER CHURCH
214 RIDGE ROAD, MUNSTER, INDIANA
DETAILS & SPECIFICATIONS

07-08-2022
07-05-2022
06-06-2022
REVISIONS:
DATE: 04-22-2022

CLIENT:
c/o Pastor Jim Hollendoner
Munster Christian Ref. Church
214 Ridge Road
Munster, Indiana 46321

JOB NO: 2022-5015
SCALE: NTS

SHEET
C-4.0

DONALD C. TORRENGA REGISTERED No. 19868 STATE OF INDIANA PROFESSIONAL ENGINEER

FILE NO: Z:\2022-5015 MCRC\dwg\2022-5015 Details.dwg 7/8/2022 10:08:36 AM CDT

GENERAL SPECIFICATIONS FOR SANITARY SEWER

1. All work shall be performed in accordance with the Codes, Ordinances and Standards of the Town of Munster, Lake County, and the State of Indiana.

2. All sanitary sewer pipe, branches and fittings shall conform the following: Poly-vinyl chloride (PVC), SDR 26 (ASTM D-3034), with push-on rubber gasket joints (ASTM C-3212). Six inch service pipes shall be in accordance with the infrastructure improvement codes of the Town of Munster.

3. All sanitary sewer manholes shall be standard 48" diameter precast concrete units (ASTM C-478) conforming with the Standard Detail sheet of these plans.

4. The sanitary manhole base shall be precast with a minimum of 2 foot section, trough, etc..

5. Sanitary manholes shall be provided with a watertight gasketed cover

6. All improvements installed across paved or future paved areas shall be backfilled with sand or graded stone aggregate to the subgrade.

7. All sanitary sewer manholes with rim elevations below Flood Protection Elevation shall be provided with water tight locking lids.

8. The competed sanitary sewer system shall be air tested for infiltration and shall have a maximum infiltration of 100 GPD/inch/diameter/mile of sewer pipe. The completed sanitary sewer system shall be air pressure tested for infiltration/exfiltration with 4 lbs. of pressure for 4 minutes. The testing shall conform to the procedure described in ASTM C-838-86 for clay pipe, ASTM C 924 for concrete pipe, ASTM F-1417 for poly-vinyl chloride pipe, and for other materials test procedures approved by the regulatory agency. The Contractor shall be responsible for supplying all testing materials and appurtenances. The Town of Munster shall be notified when the system (or portion thereof) is ready for testing.

9. Deflection tests shall be performed on all flexible pipe materials placed. The contractor shall be responsible for supplying testing materials and appurtenances. The tests shall be conducted after the final backfill has been in place at least 30 days. No pipe shall exceed a deflection of 5 %. If the deflection test is to be run using a rigid ball or mandrel, it shall have a diameter equal to 95 % of the inside diameter of the pipe. The test shall be performed without mechanical pulling devices. The Town of Munster shall be notified when the system (or portion thereof) is ready for testing.

10. Care should be taken in parkway areas to assure compaction acceptable for the future stability of driveways and sidewalks. While special backfill material is not required, it shall be the responsibility of the Contractor to protect against substantial future settlement of backfilled areas. The contractor shall provide special backfill material across driveways and sidewalks in the event that a sewer or main is installed underneath.

11. All sewers shall be laid at least 10 feet (3.0m) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. All sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches (46 cm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to prevent damage to the water main. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, the sewer shall be designed and constructed equal to water pipe.

12. The Contractor is responsible for the preparation of "As Built" construction drawings showing actual sizes and lengths of pipe installed (i.e. from manhole to manhole or tee to valve, etc.), location of service taps and any structures added or omitted in comparison with these engineering plans. The Contractor shall supply the Developer (through the Project Engineer) with one set of reproducible original "As-Built" Plans and shall supply the Town of Munster with 2 copies thereof prior to and as a condition of the final acceptance.

13. Air pressure test shall be performed on all completed Sanitary Manholes in accordance with ASTM C 1244-93, Standard Test Method for Concrete Sewer Manholes by Negative Air Pressure (Vacuum) Test. The tests shall be conducted prior to backfill to demonstrate the integrity of the installed materials. The manhole shall pass if the test time meets or exceeds the required minimum test times as specified in ASTM C 1244-93 for the vacuum reading to drop from 10 inches of mercury to 9 inches of mercury. If the manhole fails the initial test, necessary repairs shall be made, and the test shall be repeated. The contractor shall be responsible for supplying all testing materials and appurtenances. The Town of Schererville shall be notified when the manholes (or portion thereof) are ready for testing.

14. No sanitary sewer manhole shall be within eight (8) feet of a water main as measured from the outside edge of the sanitary sewer manhole to the outside edge of the water main.

GENERAL SPECIFICATIONS FOR WATER MAINS

1. All work shall be performed in accordance with the Codes, Ordinances and Standards of the Town of Munster, and the State of Indiana.

2. All water main pipe shall be (A) Ductile Iron Pipe (ANSI A 21.51/AWWA C 151, Class 52) with bell and spigot push-on rubber gasket joints (AWWA CIII). All water main shall be wrapped with Polyethylene Bags. All water main pipe shall be installed with a minimum cover of 5.0 feet from the top of the curb to the top of the pipe. All fire hydrants, tees, bends, fittings, and necessary restrained joints lengths shall be suitable harnessed with Meg-a-Lug field lock gaskets, or equal. All bolts and nuts on water main structures shall be stainless steel. Pressure test at 150 psi for 2 hours. Other materials may be used only with the express written permission of the Town of Munster.

3. All water mains shall be laid at least 10 feet (3.0m) horizontally from any existing or proposed sewer. The distance shall be measured from outside of pipe to outside of pipe. All sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches (46 cm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to prevent damage to the water main. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, the sewer shall be designed and constructed equal to water pipe.

4. Care should be taken in parkway areas to assure compaction acceptable for the future stability of driveways and sidewalks. While special backfill material is not required, it shall be the responsibility of the Contractor to protect against substantial future settlement of backfilled areas. The Contractor shall provide special backfill material across driveways and sidewalks in the event that a water main is installed underneath.

5. Each unit of the proposed building shall be provided with a 2" dia. water service tap extended from the water main to the building. Water main service lines shall be installed with a minimum cover of 5.0 feet from the top of the curb to the top of the service line. Service shall be extended from existing water main to the building as indicated on plans.

6. The Buffalo Boxes shall be arch pattern box style and shall be located in parkways, if possible. No Buffalo Boxes shall be located in concrete areas, and they shall have AWWA approved shut offs and corporation valves.

7. All water main pipe shall be disinfected by the use of liquid chlorine. The Contractor shall notify the town of Munster when the water main system (or portion thereof) is ready for testing.

8. The Contractor is responsible for water quality tests done by a State Certified Laboratory. The Town of Munster Water Department staff shall be notified and be present while tests are being performed. The approved water system shall be turned on by the Water Department Staff, only after the water quality reports have been approved.

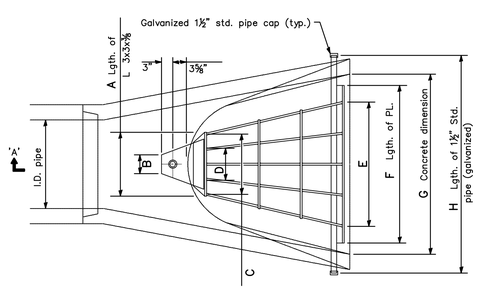
9. The newly installed water main (or portions thereof) shall be subjected to a pressure and leakage test, using hydrostatic testing. Test pressure shall not be less than 1.5 times the working pressure or exceed pipe design pressure. Pressure shall not vary by more than ± 5 PSI for a minimum of a 2 hour duration test. The exposed pipe and joints shall be examined carefully during the test and any damaged or defective pipe or joints shall be replaced, and the test shall be repeated. The allowable leakage shall not exceed 11.65 gpd/mi/in of nominal pipe diameter at a pressure of 150 PSI.
All visible leaks are to be repaired regardless of the amount of leakage. The contractor shall be responsible for supplying all testing materials and appurtenances. The Town of Munster shall be notified when the water main (or portion thereof) is ready for testing.

10. The contractor is responsible for the preparation of "As Built" construction drawings showing actual sizes and lengths of pipe installed (i.e. from manhole to manhole or tee to valve, etc.), location of service taps and any structures added or omitted in comparison with these engineering plans. The Contractor shall supply the Developer (through the Project Engineer) with one set of reproducible original "As-Built" Plans and shall supply the Town of Munster with 2 copies thereof prior to and as a condition of the final acceptance .

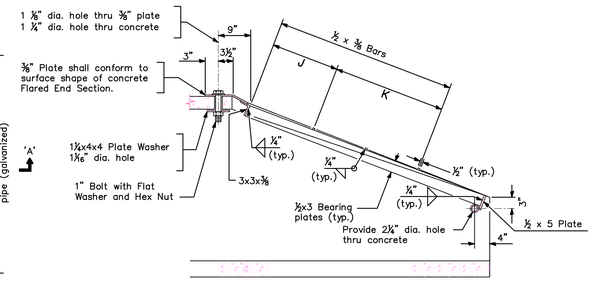
11. All watermain shall be polywrapped.

12. Fire protection service lines and domestic use service lines shall be tapped separately from the water main to allow for shutdown of the domestic service only for non-payment.

DIMENSIONS										
Pipe Diameter	A	B	C	D	E	F	G	H	J	K
18"	15"	5"	3"	2 Sp. @ 4"=8"	3 Sp. @ 9"=27"	2'-6"	3'-0"	3'-10"	13"	1 Sp. @ 12"=12"
24"	17"	5"	0"	4 Sp. @ 4"=16"	4 Sp. @ 9"=36"	3'-6"	4'-0"	4'-10"	15"	1 Sp. @ 12"=12"
27"	18"	5"	2.5"	3 Sp. @ 4"=12"	4 Sp. @ 9"=36"	4'-0"	4'-6"	5'-4"	15"	1 Sp. @ 15"=15"
30"	19"	5"	3"	3 Sp. @ 4"=12"	5 Sp. @ 9"=9'-9"	4'-6"	5'-0"	5'-10"	15"	2 Sp. @ 12"=24"
36"	21"	5"	2"	4 Sp. @ 4"=16"	6 Sp. @ 9"=4'-6"	5'-6"	6'-0"	7'-0"	18"	2 Sp. @ 15"=30"
42"	22"	6"	0"	7 Sp. @ 3"=21"	7 Sp. @ 9"=5'-3"	6'-0"	6'-6"	7'-6"	13"	3 Sp. @ 13"=39"



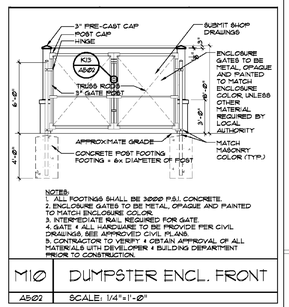
PLAN



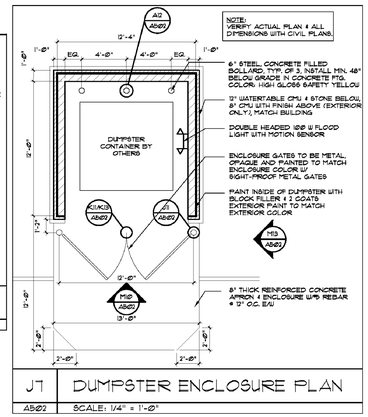
SECTION 'A'–'A'

GRATING DETAIL

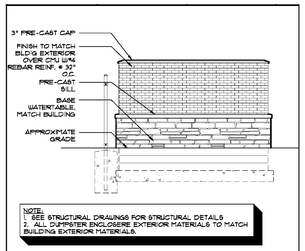
NOT TO SCALE



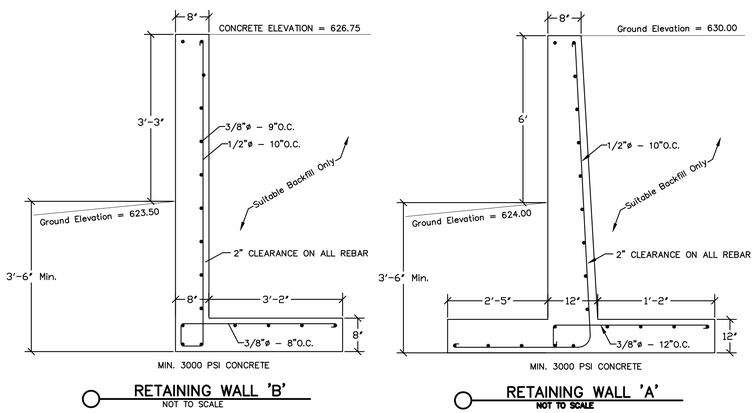
M10 DUMPSTER ENCL. FRONT
A502 SCALE: 1/4"=1'-0"



J1 DUMPSTER ENCLOSURE PLAN
A502 SCALE: 1/4" = 1'-0"

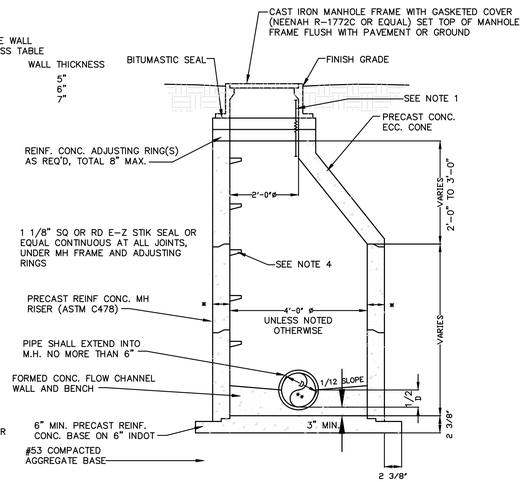


M13 DUMPSTER ENCL. SIDE
A502 SCALE: 1/4"=1'-0"



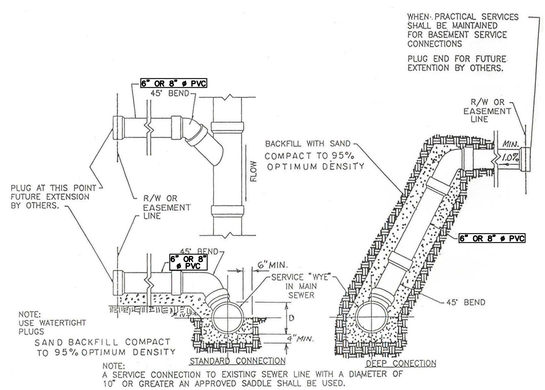
RETAINING WALL 'B'
NOT TO SCALE

RETAINING WALL 'A'
NOT TO SCALE



NOTES:
1. USE CANUSA WRAP ON ALL MANHOLES.
2. WHERE DEPTH FROM TOP OF CASTING TO INVERT IS LESS THAN 5'–0", USE FLAT TOP MANHOLE TYPE "C" IN LIEU OF ECCENTRIC CONE
3. WATERTIGHT SEAL IS REQ'D BETWEEN PRECAST RISER AND SEWER PIPE, TYPE A-LOK OR EQUAL.
4. COPOLYMER/STEEL MH STEPS AS MANUFACTURED BY M.A. INDUSTRIES, INC., OR EQUAL, AT 16" O.C.
** FOR PIPE SIZES RANGING FROM 8" TO 30" IN DIAMETER.

SANITARY TYPE "A" MANHOLE
NOT TO SCALE



SERVICE CONNECTION DETAILS
NOT TO SCALE

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel. No.: (219) 836-8918
website: www.torrenga.com

MUNSTER CHURCH
214 RIDGE ROAD, MUNSTER, IN 46321

DETAILS & SPECIFICATIONS

REVISIONS:
07-08-2022
06-06-2022

DATE: 04-22-2022

CLIENT:
c/o Pastor Jim Hollendoner
Munster Christian Ref. Church
214 Ridge Road
Munster, IN 46321

JOB NO: 2022-5015

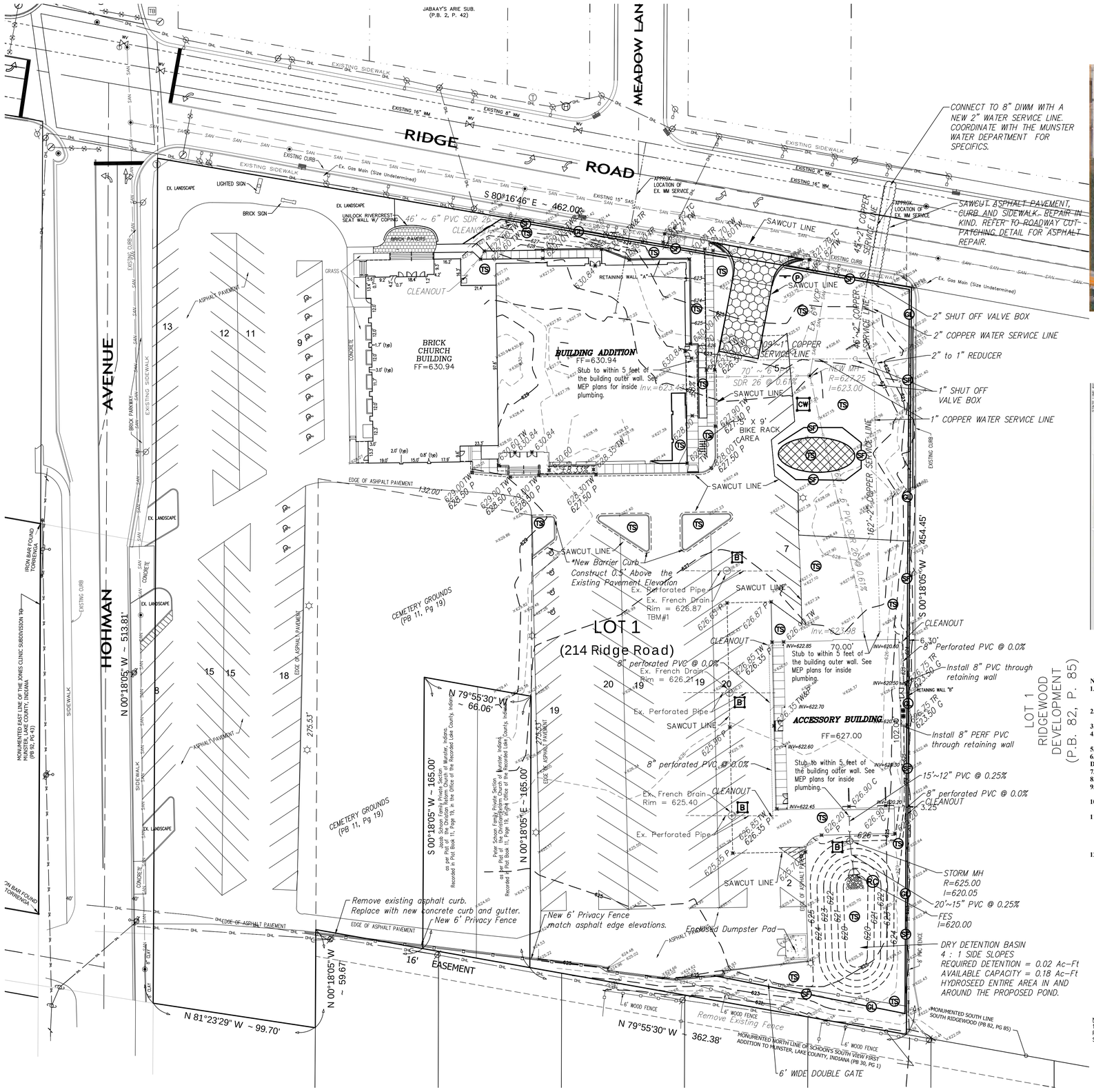
SCALE: NTS

SHEET
C-4.1

DONALD C. TORRENGA
REGISTERED
No. 19868
STATE OF INDIANA
PROFESSIONAL ENGINEER

FILE NO: Z:\2022-5015 MCRC\dwg\2022-5015 Details.dwg 7/8/2022 10:08:36 AM CDT

MUNSTER CHRISTIAN REFORMED CHURCH
~ SITE PLAN ~



SOIL MAP
NOT TO SCALE

NORTH

SOIL MAP LEGEND
PIB – Plainfield fine sand, 0 to 6 percent slopes
Mm – Maumee loamy fine sand, 0 to 1 percent slopes

WETLANDS MAP
NOT TO SCALE

NORTH

VICINITY MAP
NOT TO SCALE

NORTH

RESPONSIBLE INDIVIDUAL FOR SWPPP

COMPANY:	ROHN ASSOCIATES ARCHITECTS & PLANNERS
NAME:	TED ROHN
ADDRESS:	13177 RHODE ST CEDAR LAKE, IN 46303
PHONE:	(708) 906-4670
E-MAIL:	TWR29@COMCAST.NET

SWPPP LEGEND:

- TEMPORARY ENTRANCE/EXIT (GRAVEL OR MAT)
- SOIL STOCK PILE
- B – BASKET DROP INLET PROTECTION
- GL – GRADE LIMITS
- SF – SILT FENCE (SEDIMENT FENCE)
- CW – CONCRETE WASH OUT AREA
- TS – TEMPORARY SEEDING (SEE NOTE 12)
- P – POSTING RULE 5 NOI & NOS LETTERS AND LOCAL SWPPP PERMIT (SEE NOTE 14)
- RC – ROCK CHUTE

NOTES:

1. **THIS PROPERTY IS LOCATED IN FLOODPLAIN ZONE "X", AREAS DETERMINED TO BE OUTSIDE OF THE 0.2 % ANNUAL CHANCE FLOODPLAIN. THERE ARE NO FLOODWAYS AND FLOODWAY FRINGES ON THIS PROPERTY, AS PER FLOOD INSURANCE RATE MAP (FIRM) DATED JANUARY 18, 2012 IN COMMUNITY PANEL NUMBERS 18089C0109E & 18089C0117E.**
2. **HYDROLOGIC UNIT CODE: 07120003030060 LITTLE CALUMET RIVER-INDIANA/ILLINOIS LINE 07120003030030 HART DITCH (PLUM CREEK)-DYER DITCH**
3. **STATE OR FEDERAL WATER QUALITY PERMITS ARE REQUIRED FOR THE PROJECT SITE.**
4. **AT PRESENT THE SITE IS A CHURCH, WITH EXISTING BUILDING, ASPHALT DRIVE AND PARKING, GRAVEYARD, AND WELL MANICURED LAWN.**
5. **THERE IS A PRESENCE OF HYDRIC SOILS ON THIS PROPERTY, Mm-MAUMEE LOAMY FINE SAND.**
6. **THERE ARE NO EXISTING WETLAND AREAS ON THIS PROPERTY, AND ITS SURROUNDING AREAS AS CLASSIFIED BY THE UNITED STATES DEPARTMENT OF THE INTERIOR U.S. FISH AND WILDLIFE SERVICE, NATIONAL WETLANDS INVENTORY.**
7. **THE POTENTIAL SOURCE OF STORMWATER DISCHARGE ENTERING THE GROUNDWATER IS THROUGH NATURAL GROUND ABSORPTION.**
8. **SOIL STOCKPILES, BORROW AND DISPOSAL AREAS FOR THIS PROJECT ARE LOCATED WITHIN THE PROJECT SITE.**
9. **AN AREA WHERE THE PROPOSED BUILDING, STORM SEWERS, SANITARY SEWERS, WATER MAINS AND OTHER UTILITIES WILL BE DISTURBED DURING CONSTRUCTION. IN ALL OTHER AREAS, EXISTING VEGETATIVE COVER WILL BE PRESERVED.**
10. **AN EROSION CONTROL AND GEOSYNTHETIC MATERIAL SUPPLIES LIST IS AVAILABLE AT THE SCS OFFICE AND SHALL BE CONSULTED BEFORE PURCHASING THE REQUIRED EROSION CONTROL ITEMS.**
11. **PERMANENTLY SEED ALL FINE GRADE AREAS (e.g., LANDSCAPE BERMS, DRAINAGE BERMS, DRAINAGE SWALES, EROSION CONTROL STRUCTURES, ETC.) AS EACH IS COMPLETED AND ALL AREAS WHERE ADDITIONAL WORK IS NOT SCHEDULED FOR A PERIOD OF MORE THAN A YEAR. SEEDING: OPTIMUM SEEDING DATED ARE MARCH 1 - MAY 10 AND AUGUST 10 - SEPTEMBER 30. SEEDING DATES BETWEEN MAY 10 AND AUGUST 10, MAY NEED TO BE IRRIGATED. FOR SEEDING RECOMMENDATIONS SEE PRACTICE 3.12, INDIANA HANDBOOK FOR EROSION CONTROL.**
12. **A TREE CONSERVATION AND PROTECTION PLAN SHOULD BE IN PLACE TO INSURE SURVIVAL OF DESIRABLE TREES FROM THE EFFECTS OF COMPACTION, GRADING DAMAGE, WOUND PREVENTION AND A PLAN FOR TREE REPAIRS FROM CONSTRUCTION ACTIVITIES. SEE THE SOIL CONSERVATION SERVICE OR THE STATE FORESTER FOR ASSISTANCE.**

Temporary stabilization plans and sequence of implementation.

a. On site posting of the complete Rule 5 NOI and NOS Letters. Location of the posting and plans shall be made available by the owner contractor.
b. Installation of all erosion/sedimentation controls including stabilized construction entrance, silt fences, etc... per the engineering plans.
c. Clearing and grubbing.
d. All disturbed areas shall be permanent seeded, mulched, when no additional disturbance is anticipated.
e. Topsoil stockpile surrounded with silt fencing.
f. Rough cut and fill of all proposed detention areas and other major grading per the engineering plans shall be done to rough grades at start of construction to prevent excessive soil erosion due to construction.
g. Construction of storm sewers, sanitary sewers, water mains, and other utility, and implementation of storm sewer inlet protection at each open-grate structure (fabric drop inlet protection, basket inlet protection, etc., as per engineering plans).
h. Regrade and construct buildings.
i. Complete permanent erosion control and restoration of site vegetation. Erosion control measures are to be removed upon permanent vegetative cover being established.

NOTES:
1. FOR POST CONSTRUCTION STORM WATER POLLUTION PREVENTION, ALL AREAS DESIGNATED FOR TEMPORARY SEEDING SHALL BE PERMANENTLY SEEDED.

NORTH
GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

TORRENGA ENGINEERING, INC.
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MUNSTER CHRISTIAN REFORMED CHURCH
214 RIDGE ROAD, MUNSTER, IN 46321

STORM WATER POLLUTION PREVENTION PLAN

REVISIONS:	DATE: 04-22-2022
07-08-2022	
07-05-2022	
06-06-2022	

CLIENT:
c/o Pastor Jim Hollendoner
Munster Church
214 Ridge Road
Munster, IN 46321

JOB NO: 2022-5015
SCALE: 1" = 30'

SHEET
C-5.0

FILE NO:Z:\2022-5015 MCRC\dwg\2022-5015 MCRC - SWPPP.dwg 6/6/2022 4:08:04 PM CDT

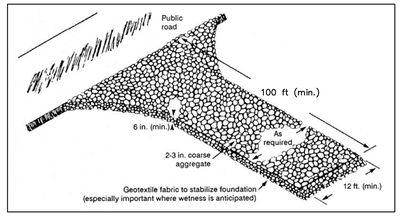
TEMPORARY CONSTRUCTION ENTRANCE/EXIT

Purpose: To provide a stable entrance/exit condition from the construction site, and to keep mud and sediment off public roads.

"GRAVEL"
Requirements:
Width: 12 feet minimum or full width of entrance
Length: 100 feet minimum
Material: 2-3 inch diameter washed stone (INDOT CA No. 2), with Geotextile Fabric Underliner.
Thickness: 6 inch minimum

Installation:
1. Remove all vegetation and other objectionable material from the foundation area.
2. Install pipe under the stone if needed to provide proper public road drainage.
3. Install Geotextile fabric on the graded foundation area prior to stone placement.
4. Divert all surface runoff and drainage from the stone to sediment trap.

Maintenance:
1. Inspect entrance pad for sediment deposits 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. Remove mud and sediment tracked or washed onto public road by brushing or sweeping. No flushing of sediment off the street
5. Repair any broken road pavement immediately.

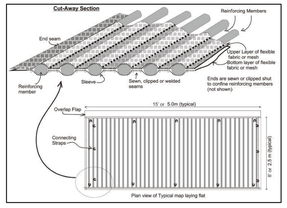


Plans of a temporary gravel construction entrance/exit pad.

"MAT"
Requirements:
Width: 12 feet minimum or full width of entrance
Length: 50 feet minimum
Material: Geotextile-Type mats, **AGES Mud Mat** or approved equal

Installation:
1. Install pipe under mat if needed to provide proper site drainage.
2. Install Geotextile-Type mat on the graded foundation area.
3. Divert all surface runoff and drainage from the mat to sediment trap.

Maintenance:
1. Inspect entrance mat for sediment deposits weekly and after storm of a minimum of 1/2 inch rainfall events or heavy use.
2. Reshape pad as needed for drainage and runoff control.
3. Repair or replace mats as needed.
4. Remove mud and sediment tracked or washed onto public road by brushing or sweeping. No flushing of sediment off the street.



PLANS OF TEMPORARY CONSTRUCTION INGRESS/EGRESS PAD

TEMPORARY SEEDING

Purpose: To stabilize disturbed areas especially along both sides of the streets and courts after final grading work is completed and where additional work is not scheduled.

Requirements:
Site and seedbed preparation: Graded, and lime and fertilizer applied

Seed Selected:
Selected on the basis of quick germination, growth, and time of year, see Table for temporary seeding recommendations.

Fertilize: According to soil test or use 600 lbs/acre 12-12-12 analysis or equivalent.

Mulch: 1.5 - 2 tons/acre straw. Straw must be dry, unchopped and free of undesirable seeds.

Application:
1. Fertilize and lime as recommended by the soil test.
2. Till the soil to obtain a uniform seedbed, working the fertilizer and lime into the soil 2-4" deep with a disk or rake operated across the slope.
3. Apply seed uniformly with a drill or cultipacker-seeder, or by broadcasting, and cover to a depth as shown on Table for temporary seeding recommendations.
4. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
5. Mulch all seeded areas. (Note: If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.)

Maintenance:
1. Inspect periodically after planting to see that vegetative stands are adequately established; re-seed if necessary.
2. Check for erosion damage after storm events and repair; re-seed and mulch if necessary.

Notes:
1. Vegetative Filter Strip: permanent or temporary, shall be done on all disturbed areas along both sides of the streets and courts to reduce erosion where additional work is not scheduled.
2. Permanent Seeding: or sodding shall be done at the time of final landscaping.

Exhibit 3.11-B. Temporary Seeding Recommendations.

Seed species*	Rate/acre	Planting depth	Optimum dates**
Wheat or rye	150 lbs.	1 to 1½ in.	9/15 to 10/30
Spring oats	100 lbs.	1 in.	3/1 to 4/15
Annual ryegrass	40 lbs.	1/4 in.	3/1 to 5/1 8/1 to 9/1
German millet	40 lbs.	1 to 2 in.	5/1 to 6/1
Sudangrass	35 lbs.	1 to 2 in.	5/1 to 7/30

* Perennial species may be used as a temporary cover, especially if the area to be seeded will remain idle for more than a year (SEE PERMANENT SEEDING)
** Seeding done outside the optimum dates increases the chances of seeding failure.

PERMANENT SEEDING

Purpose: To stabilize disturbed areas especially along both sided of the streets and courts after final grading work is completed and where additional work is not scheduled.

Requirements:
Site and seedbed preparation: Graded, and lime and fertilizer applied.

Seed Selected:
Selected on the basis of Site Conditions, Soil PH, intended land use, and expected level of maintenance see Table for permanent seeding recommendations.

Fertilize: According to soil test or use 600 lbs/acre 12-12-12 analysis or equivalent.

Mulch: 1.5 - 2 tons/acre straw. Straw must be dry, unchopped and free of undesirable seeds.

Application:
1. Fertilize and line as recommended by soil test.
2. Till the soil to obtain a uniform seedbed, working the fertilizer and lime into the soil 2-4" deep with a disk or rake operated across the slope.
3. Apply seed uniformly with a drill or cultipacker-seeder, or broadcasting, and cover to a depth of ¼ to ½ inch.
4. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
5. Mulch all seeded areas. (Note: If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.)

Maintenance:
1. Inspect periodically, especially after storm events, until the stand is successfully established. (Characteristics of a successful stand include: vigorous dark green or bluish-green seedling; uniform density with nurse plants, legumes, and grasses well intermixed; green leaves; and the perennials remaining green throughout the summer, at least at the plant base.)
2. Plan to add fertilizer the following seasons according to soil test recommendations.
3. Repair damaged, bare or sparse areas by filling any gullies, refertilizing, over- or re-seeding, and mulching.
4. If plant cover is sparse or patchy, review the plant materials chosen, soil fertility, moisture condition, and mulching; then repair the affected area either by over-seeding or by re-seeding, and mulching.
5. If vegetation fails to grow, consider soil testing to determine acidity or nutrient deficiency problems. (Contact your SWCD or Cooperative Extension office for assistance.)
6. If additional fertilization is needed to get a satisfactory stand, do so according to soil test recommendations.

Notes:
1. Permanent seeding optimum dates are March 1 to May 10 and August 10 to September 30, seeding done between May 10 to August 10 may require irrigation. Temporary seeding may be used as an alternative until preferred date for Permanent Seeding.
2. Retention/Detention area walls and base will be seeded as soon as possible using permanent seeding when possible, mulch or erosion control blankets are to be used on seeded areas to protect the soil from wind and water impact. Install silt fences around Retention/Detention area until seed is established.

Seeding Recommendations.
This table provides several seeding options. Additional seed species and mixtures are available commercially. When selecting a mixture, consider site conditions, including soil properties (e.g., soil pH and drainage), slope aspect and the tolerance of each species to shade and droughtiness.

Seed species and mixtures	Rate per acre: Permanent	Rate per acre: Dormont or frost	Optimum soil pH
OPEN AND DISTURBED AREAS (REMAINING IDLE MORE THAN 1 YR.)			
1. Perennial ryegrass	35 to 50 lbs.	50 to 75 lbs.	5.6 to 7.0
+ white or ladino clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
2. Kentucky bluegrass	20 lbs.	30 lbs.	5.5 to 7.5
+ smooth bromegrass	10 lbs.	15 lbs.	
+ switchgrass	3 lbs.	5 lbs.	
+ timothy	4 lbs.	6 lbs.	
+ perennial ryegrass	10 lbs.	15 lbs.	
+ white or ladino clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
3. Perennial ryegrass	15 to 30 lbs.	22 to 45 lbs.	5.6 to 7.0
+ tall fescue**	15 to 30 lbs.	22 to 45 lbs.	
4. Tall fescue**	35 to 50 lbs.	50 to 75 lbs.	5.5 to 7.5
+ ladino or white clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
STEEP BANKS AND CUTS, LOW MAINTENANCE AREAS (NOT MOWED)			
1. Smooth bromegrass	25 to 35 lbs.	35 to 50 lbs.	5.5 to 7.5
+ red clover*	10 to 20 lbs.	15 to 30 lbs.	
2. Tall fescue**	35 to 50 lbs.	50 to 75 lbs.	5.5 to 7.5
+ white or ladino clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
3. Tall fescue**	35 to 50 lbs.	50 to 75 lbs.	5.5 to 7.5
+ red clover* (Recommended north of US 40)	10 to 20 lbs.	15 to 30 lbs.	
4. Orchardgrass	20 to 30 lbs.	30 to 45 lbs.	5.6 to 7.0
+ red clover*	10 to 20 lbs.	15 to 30 lbs.	
+ ladino clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
5. Crownvetch	10 to 12 lbs.	15 to 18 lbs.	5.6 to 7.0
+ tall fescue** (Recommended south of US 40)	20 to 30 lbs.	30 to 45 lbs.	
LAWNS AND HIGH MAINTENANCE AREAS			
1. Bluegrass	105 to 140 lbs.	160 to 210 lbs.	5.5 to 7.0
2. Perennial ryegrass (turf-type)	45 to 60 lbs.	70 to 90 lbs.	5.6 to 7.0
+ bluegrass	70 to 90 lbs.	105 to 135 lbs.	
3. Tall fescue (turf-type)**	130 to 170 lbs.	195 to 250 lbs.	5.6 to 7.5
+ bluegrass	20 to 30 lbs.	30 to 45 lbs.	
CHANNELS AND AREAS OF CONCENTRATED FLOW			
1. Perennial ryegrass	100 to 150 lbs.	150 to 225 lbs.	5.6 to 7.0
+ white or ladino clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
2. Kentucky bluegrass	20 lbs.	30 lbs.	5.5 to 7.5
+ smooth bromegrass	10 lbs.	15 lbs.	
+ switchgrass	3 lbs.	5 lbs.	
+ timothy	4 lbs.	6 lbs.	
+ perennial ryegrass	10 lbs.	15 lbs.	
+ white or ladino clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
3. Tall fescue**	100 to 150 lbs.	150 to 225 lbs.	5.5 to 7.5
+ ladino or white clover*	1 to 2 lbs.	1 ½ to 3 lbs.	
4. Tall fescue**	100 to 150 lbs.	150 to 225 lbs.	5.5 to 7.5
+ Perennial ryegrass	15 to 20 lbs.	22 to 30 lbs.	
+ Kentucky bluegrass	15 to 20 lbs.	22 to 30 lbs.	

* For best results: (a) legume seed should be inoculated; (b) seeding mixtures containing legumes should preferably be spring-seeded, although the grass may be fall-seeded and the legume frost-seeded; and (c) if legumes are fall-seeded, do so in early fall.
** Tall fescue provides little cover for, and may be toxic to, some species of wildlife. The IDNR recognizes the need for additional research on alternatives to tall fescue, such as buffalograss, orchardgrass, smooth bromegrass, and switch-grass. This research, in conjunction with demonstration areas, should focus on erosion control characteristics, wildlife toxicity, turf durability, and drought resistance.

DORMANT AND FROST SEEDING

Purpose:
1. To provide early germination and soil stabilization in the spring.
2. To reduce sediment runoff to downstream areas.
3. To repair previous seedings.

Requirements:
Site and seedbed preparation: Graded, lime and fertilizer applied.

Seed Selected:
Selected on the basis of Site Conditions, Soil PH, intended land use, and expected level of maintenance. See Table for dormant or frost seeding recommendations.

Fertilize: According to soil test or use 400-600 lbs/acre 12-12-12 analysis or equivalent.

Application:
Dormant seeding is a temporary or permanent seeding application at a time when soil temperatures are too low for germination to occur (less than 50 °F) Frost seeding is a temporary or permanent seeding application in early spring when soils are in the freeze-thaw stage.

For Dormant Seeding: (Seeding dates: Dec. 1-Feb. 28)
1. Site preparation and mulching can be done months ahead of actual seeding, apply mulch upon completion of grading (Practice 3.15)
2. Broadcast fertilizer as recommended by soil test.
3. Broadcast seeding on top of the mulch and/or into existing ground cover at the rate shown on table. (if site preparation occurs within the recommended dates, fertilize and lime, seed, and mulch at the time.)

For Frost Seeding: (Seeding dates: Feb. 28 - Mar. 28)
1. Broadcast fertilizer as recommended by a soil test.
2. Select an appropriate seed species or mixture from table for temporary seeding or table for permanent seeding, and broadcast on to the seedbed or into the existing ground cover at the rate shown. (Do not work the seed into the soil.)

Maintenance:
1. Apply 200-300 lbs./acre of 12-12-12 or equivalent fertilizer between Apr. 15 and May 10 or during periods of vigorous growth.
2. Re-seed and mulch any areas that have inadequate cover by mid- to late April. For best results, re-seed within the recommended dates shown for temporary seeding or for permanent seeding.

Temporary Dormant or Frost Seeding Recommendations.

Seed species*	Rate per acre
Wheat or rye	150 lbs.
Spring oats	150 lbs.
Annual ryegrass	60 lbs.

*Perennial species may be used as temporary cover, especially if the area to be seeded will remain idle for more than a year.

MULCHING

Purpose: To promote seed germination and seedling growth, a temporary surface stabilization, and protecting the soil from wind and water impact.

Requirements:
Material: Straw, hay, wood fiber or excelsior, see table for Mulch Materials, Rates, and comments.
Comments:
Coverage: 75% of the soil surface
Anchoring: Required to prevent displacement by wind or water, see table for Mulch Anchoring Methods.

Application:
1. Apply mulch at the recommended rate.
2. Spread uniformly by hand, hay fork, mulch blower, or hydromulcher with no more than 25% of the surface visible.
3. Anchor immediately if using straw or hay, using one of the folliwing methods:
- Crimp with mulch anchoring tool.
- Hydromulch with short cellulose fibers.
- Apply liquid tackifier.
- Cover with netting secured with metal staples..

Maintenance:
1. Inspect after storm events to check for movement of mulch or for erosion.
2. If washout, breakage, or erosion is present, repair the surface, then re-seed, re-mulch.
3. Continue inspections until vegetation is firmly established.

Exhibit 3.15-B. Mulch Materials, Rates, and Comments.

Material	Rate	Comments
Straw or hay	1½-2 tons/acre	Should be dry, unchopped, free of undesirable seeds. Spread by hand or machine. Must be crimped or anchored (see *Exhibit 3.15-D*).
Wood fiber or cellulose	1 ton /acre	Apply with a hydromulcher and use with tacking agent.
Long fiber wood (excelsior)	1/2-3/4 ton/acre	Anchor in areas subject to wind.

Exhibit 3.15-D. Mulch Anchoring Methods.

Anchoring method	How to apply
Mulch anchoring tool OR Farm disk (dull, serrated, and set straight)	Crimp or punch the straw or hay into the soil 2-4 in. Operate machinery on the contour of the slope.
Cleating with dozer tracks	Operate dozer up and down slope, not across, or else the tracks will form rills.
Wood hydromulch fibers	Apply 1-2 tons/acre using a hydromulcher at a rate of 750 lbs./acre with a tacking agent (or according to contractor specifications). Do not use in areas of concentrated flow.
Asphalt emulsion	Emulsified asphalt should conform to the requirements of ASTM Spec. #977. Apply with suitable equipment at a rate of 0.05 gal./sq. yd. Do not use in areas of concentrated flow.
Synthetic tackifier, binder or soil stabilizer	Apply according to manufacturer's recommendation.
Biodegradable netting (polypropylene or similar material)*	Apply over mulch and staple with 6-8 in. wire staples. Follow manufacturer's recommendations for installation. Best suited to slope application.

* Install the netting immediately after applying the mulch. In areas of concentrated water flow, lay it parallel to the direction of flow; on other slopes, lay it either parallel or perpendicular to direction of flow. Edges of adjacent netting strips should overlap 4-6 in., with the strip on the upgrade side of any lateral water flow on top. Installation details are site specific, so follow manufacturer's directions.

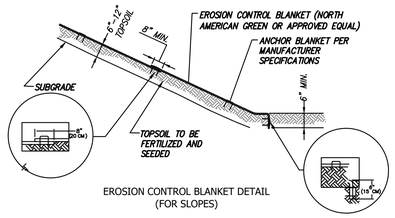
EROSION CONTROL BLANKET (SURFACE-APPLIED)

Purpose: To prevent erosion by protecting the soil from rainfall impact, overland water flow, concentrated runoff, or wind.
To conserve moisture and increase seed germination and seedling growth.

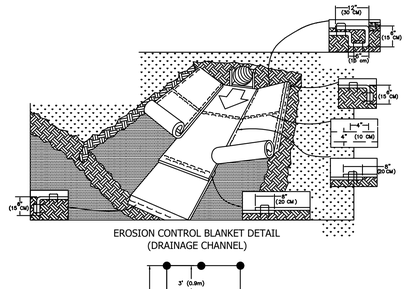
Requirements:
Material: Either an organic (straw, excelsior, woven paper, coconut, fiber, etc.) or a synthetic mulch incorporated into a polypropylene or similar netting material. It may be biodegradable, photodegradable or permanent. **North American Green** or approved equal.
Anchoring: Use of staples or stakes to prevent movement of displacement.

Installation:
1. Grade the site as specified in the construction plan.
2. Add topsoil where appropriate.
3. Prepare the seedbed, fertilize and seed the area immediately after grading.
4. Following manufacture's directions, lay the blankets on the seeded area such that they are in continuous contact with the soil and that the upslope or upstream ones overlap the lower ones by at least 8 inches.
5. Tuck the uppermost edge of the upper blankets into a check slot (slit trench), backfill with the soil, and tamp down.
6. Anchor the blankets as specified by the manufacturer by driving 6-8 in. metal staples into the ground in a pattern determined by the site conditions.

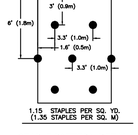
Maintenance:
1. During vegetative establishment, inspect after storm events for any erosion below the blanket.
2. If any area shows erosion, pull back that portion of the blanket covering it, add soil, re-seed the area, and re-lay and staple the blanket.
3. After vegetative establishment, check the treated area periodically.



EROSION CONTROL BLANKET DETAIL
(FOR SLOPES)



EROSION CONTROL BLANKET DETAIL
(DRAINAGE CHANNEL)



STAPLE PATTERN DETAIL

SELF-MONITORING PROGRAM

A self-monitoring program that includes the following must be implemented at all permitted project sites:

1. A trained individual shall perform a written evaluation of the project site a minimum of one (1) time per week and by the end of the next business day following each measurable storm event.
2. The evaluation must address the maintenance of existing storm water quality measures to ensure they are functioning properly and identify additional measures necessary to remain in compliance with all applicable statutes and rules.
3. Written evaluation reports must include:
   a. the name of individual performing the evaluation;
   b. the date of evaluation;
   c. problems identified at the project site; and
   d. details of corrective actions recommended and completed.
4. All evaluation reports for the project site must be made available to the MS4 Operator or other designated entity within forty-eight (48) hours of a request.
5. Evaluation reports must be maintained for a period of two (2) years from date of NOT.
6. All evaluation reports will be submitted to the Town of Munster when requested.

Date:
Project:
Inspected by:
Type of Inspection: ☐ Scheduled Weekly ☐ Rain Event

CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG
(To be Completed by Property Owner or Agent)

All stormwater pollution prevention BMPs shall be inspected and maintained as needed to ensure continued performance of their intended function during construction and shall continue until the entire site has been stabilized and a Notice of Termination has been issued. An inspection of the project site must be completed by the end of the next business day following each measurable storm event. If there are no measurable storm events within a given week, the site should be monitored at least once in that week. Maintenance and repair shall be conducted in accordance with the accepted site plans. This log shall be kept as a permanent record and must be made available to Town of Munster Engineer, in an organized fashion, within forty-eight (48) hours upon request.

Yes	No	N/A	
			1. Are all sediment control barriers, inlet protection and silt fences in place and functioning properly?
			2. Are all erodible slopes protected from erosion through the implementation of acceptable soil stabilization practices?
			3. Are all dewatering structures functioning properly?
			4. Are all discharge points free of any noticeable pollutant discharges?
			5. Are all discharge points free of any noticeable erosion or sediment transport?
			6. Are designated equipment washout areas properly sited, clearly marked, and being utilized?
			7. Are construction staging and parking areas restricted to areas designated as such on the plans?
			8. Are temporary soil stockpiles in approved areas and properly protected?
			9. Are construction entrances properly installed and being used and maintained?
			10. Are all "no-build" areas designated on plan sheets clearly marked on-site and avoided?
			11. Are public roads at intersections with site access roads being kept clear of sediment, debris, and mud?
			12. Is spill response equipment on-site, logically located, and easily accessed in an emergency?
			13. Are emergency response procedures and contact information clearly posted?
			14. Is solid waste properly contained?
			15. Is a stable access provided to the solid waste storage and pick-up area?
			16. Are hazardous materials, waste or otherwise, being properly handled and stored?
			17. Have previously recommended corrective actions been implemented?

If you answered "no" to any of the above questions, describe any corrective action which must be taken to remedy the problem and when the corrective actions are to be completed.

REPORT SAMPLE

SPILL PREVENTION AND RESPONSE

Purpose: Procedures and practices to prevent and control spills in a manner that minimizes or eliminates the discharge of spilled material to the drainage system or watercourses.

Hazardous Waste Products:
- Petroleum Products,
- Asphalt Products,
- Concrete Curing Compounds,
- Pesticides,
- Acids,
- Paints,
- Stains,
- Solvents,
- Wood Preservatives,
- Roofing Tar, or

Other Waste Products:
- Soil stabilizers/binders
- Dust palliatives
- Herbicides
- Growth inhibitors
- Fertilizers
- Deicing/anti-icing chemicals
- Fuels
- Lubricants
- Other petroleum distillates

Any materials deemed a hazardous waste in 40 CFR Parts 110, 117, 261, or 302

Spill Prevention Practices:
The following are management practices used for reduction of spills and other accidental exposure of materials and substances to storm water runoff:
a. The contractors and subcontractors shall refer to the Material Safety Data Sheet (MSDS) for information on the proper storage, use, and clean-up methods for all materials anticipated being on the project site.
b. All required materials for spill clean up and disposal of all onsite materials shall be kept on site in a project trailer with easy access for all users of associated materials.
c. All disposals of spilled materials shall be done in accordance with Federal, State and Local waste disposal regulations. All contractors and subcontractors shall be responsible for any and all spills associated with their work.
d. Prompt cleanup of any spills that may occur of liquid or dry materials.
e. Cleanup of sediments that have been tracked by vehicles or have been transported by wind or storm water about the site or onto nearby roadways.

Response Practices:
In the event that a large spill occurs (that which requires extensive cleanup actions, refer to MSD sheets for information), the following procedures shall be followed to minimize exposure of the material.

a. Immediate action shall be taken to control and contain the spill to prevent it from entering any nearby storm sewer structures or open waters.
b. Notify the Town of Munster Fire Department at 911 for all combustible and flammable materials.
c. Notify: for local contact, the Lake County Emergency Management at Phone: 219-755-3549, and/or Fax: 219-755-3559; the Federal Emergency Spill Hotline at 1-800-424-8802 within 2 hours for spills above the reported allowable quantity, or if the material enters any nearby storm sewer structures or open waters.
d. Notify: for local contact, the Lake County Emergency Management at Phone: 219-755-3549, and/or Fax: 219-755-3559; the Indiana Emergency Response Hotline at 1-888-233-7745.
e. The spill area shall be isolated from all surrounding areas with absorbent pads, booms, and pillows designed for the use of spill containment and absorption.
f. The spill kits that are required to be on site shall be utilized.
g. Emergency Response teams shall be contacted for extensive spills above and beyond the containment by available methods.

Waste Disposal Management Practices:
All solid waste associated with the construction and development of this project shall be removed and disposed of properly with in all applicable state and federal laws associated with the waste generated. Developer and/or contractor are to provide on-site dumpsters, rented from a licensed solid waste management company, to ensure waste is collected and disposed of properly. All trash and construction debris from the site will be deposited in a dumpster. No construction waste will be buried onsite. All personnel will be instructed regarding the correct procedure for waste disposal.

a. Select a designated waste collection area onsite.
b. Provide an adequate number of containers with lids or covers throughout the site, and frequent pickups
c. Provide immediate cleanup of any container spills.
d. Make sure that construction waste is collected, removed, and disposed of only at authorized areas.

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel. No.: (219) 836-8918
website: www.torrenga.com

MUNSTER CHRISTIAN REFORMED CHURCH
214 RIDGE ROAD, MUNSTER, IN 46321

STORM WATER POLLUTION PREVENTION PLAN

06-06-2022
REVISIONS:
DATE: 04-22-2022

CLIENT:
c/o Pastor Jim Hollendoner
Munster Church
214 Ridge Road
Munster, IN 46321

JOB NO: 2022-5015
SCALE: 1"=30'

SHEET
C-6.0

FILE NO: Z:\2022-5015 MCRC\dwg\2022-5015 SWPPP Details.dwg 6/6/2022 4:08:46 PM CDT

ROCK CHUTE

Purpose: To protect slopes, stream banks and channels, which are subject to erosion. Where run off velocity is great, at the outlet pipe of a detention basin, channel or culvert.

Requirements:

Rock: Hard angular, weather-resistant and well graded stone, the largest pieces should not exceed two times the specified stone diameter.

Thickness: 12" minimum or two times the specified stone diameter, which ever is greater.

Filter: Under permanent riprap install geotextile fabric for stabilization and filtration

Installation:

Subgrade Replacement:

1. Remove brush, trees, stumps, and other debris.
2. Excavate only deep enough for both filter and riprap.

Filter Placement:

1. Place geotextile fabric on a smoothed foundation, overlap the edges at least 12 inches and secure with anchor pins spaced every 3 feet along the overlap.
2. If fabric is damaged, remove the riprap and repair damaged area by 12 inches.

RipRap Replacement:

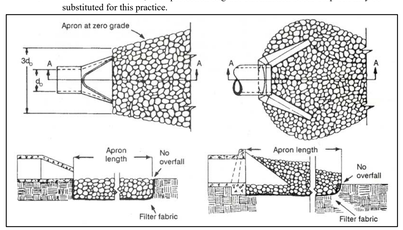
1. Immediately after installing the filter, add the riprap to full thickness in one operation to the design elevation, and extend riprap to the top of the bank.
2. Place smaller rock in voids to form a dense, uniform, well-graded mass.
3. Blend the riprap smoothly to the surrounding grade.
4. Stabilize all disturbed areas immediately following installation.

Maintenance:

1. Inspect periodically for displaced rock material, slumping, and erosion at edges, especially down stream or down slope.

Note:

1. At owner's discretion, oulet protection & grade stabilization Scour Stop TM may be substituted for this practice.



Pipe outlet aprons for a channel (left) that is not well defined and (right) that is well defined.

SILT FENCE

Purpose: To retain sediment from small sloping disturbed areas by reducing the velocity of sheet flow.

Requirements:

Trench: 8" minimum depth, flat bottom or v-shaped, filled with compacted soil or gravel to bury lower portion of support wire and/or fence fabric.

Support posts: 2" x 2" hardwood posts set at lease 1 foot deep.

Spacing of Posts: 8-foot maximum if fence supported by wire, otherwise 6 foot for extra strength fabric without wire backing.

Fence height: A 3 feet minimum or high enough so depth of impounded water does not exceed 1.5 feet at any point along fence line.

Support wire : (optional) 14 gauge, 6" mesh wire fence. (needed if using standard-strength fabric

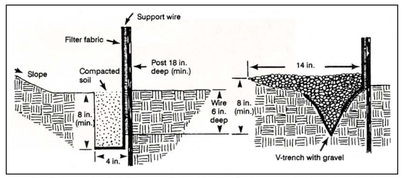
Fence Fabric: Woven or non-woven Geotextile fabric with specified filtering efficiency and tensile strength and containing UV inhibitors and stabilizers to ensure 6 months minimum life at temperatures 0-120 degrees F.

Installation:

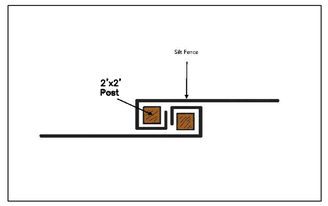
1. Along the entire intended fence line, maintain contour as much as possible, dig an 8" deep flat bottom or v-shaped trench.
2. On the downslope side of the trench, drive the post at least 1 foot into the ground. (Note: If the fence has pre-attached posts or stakes, drive them deep enough so the fabric is satisfactorily in the trench per step 6)
3. Fasten support wire fence to the upslope side of the posts, extending it 8" into trench. (use only if required by manufacturer)
4. Run a continuous length of Geotextile fabric along upslope side of posts.
5. If a joint is necessary, nail the overlap to the nearest post with a wood lath.
6. Place the bottom 1' of fabric in the 8" deep trench, extending the remaining 4" of fabric toward the upslope side.
7. Backfill the trench with compacted earth.

Maintenance:

1. Inspect silt fence periodically and after each storm event.
2. If fence fabric tears, starts to decompose, or becomes ineffective, replace the affected portion.
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 watershed has been stabilized, remove fence and sediment deposits, bring the disturbed area to grade and stabilize.



Detailed example of silt fence installation (showing flat-bottom and v-shaped trenches).



Silt Fence Wrap Joint Detail

BASKET INLET / CATCH BASIN PROTECTION

Purpose: To prevent excessive sediment from entering storm sewers at inlet/catch basin, allowing full use of the storm drain system during the construction period.

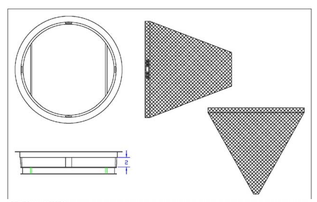
Requirements: Steel Frame with top width-length dimensions such that the basket fits into the inlet and/or catch basin (circular and/or rectangular), and a replaceable Geotextile fabric bag attached with a steel band locking cap that is suspended from the frame, **Catch -all Inlet Protector Hancor Flo-Gard bt Nyloplast** or approved equal.

Installation:

1. Install protection to existing and newly installed inlet/catch basin in a new development before land disturbing activities begin in a stabilized area.
2. Remove the grate, and place the basket assembly under the grate on the lip of the structure frame.
3. Replace the inlet/catch basin grate.

Maintenance:

1. Inspect weekly during construction and after each storm event of a minimum of 1/2 inch rainfall, and remove built-up sediment.
2. Replace bag every six (6) months.
3. Replace the Geotextile fabric bag if there is a hole and/or won't pass water.
4. Replace the Geotextile fabric bag after any oil, gasoline or solvent spill.



GENERAL NOTES:
FRAME: Top flange fabricated from 1¼"x1¼"x¼" angle. Base rin fabricated from 1¾"x¾"x¾" channel. Handles and suspension brackets fabricated from 1¾"x¼" flat stock. All steel conforming to ASTM-A36.
SEDIMENT BAG Bag fabricated from 4 oz./sqyd. non-woven polypropylene geotextile reinforced with polyester mesh. Bag secured to base rin with a stainless steel band and lock.

TYPICAL INLET/CATCH BASIN PROTECTION
INSERT DETAIL

CONCRETE WASHOUT

Purpose: To reduce the discharge of pollutants associated with concrete waste through consolidation of solids and retention of liquids.

Requirements:

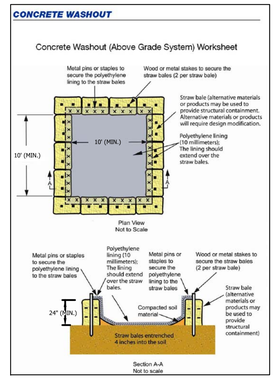
1.) Locate concrete washout systems at least 50 feet from any creeks, wetlands, ditches, karst features, or storm drains/manmade conveyance systems.
2.) Locate concrete washout systems in relatively flat areas with established vegetative cover and do not receive runoff from adjacent land areas.
3.) Locate in areas that provide easy access for concrete trucks and other construction equipment.
4.) Locate away from other construction traffic to reduce the potential for damage to the system.
5.) Minimum of ten millimeter polyethylene sheeting that is free of holes, tears, and other defects. The sheeting selected should be of an appropriate size to fit the washout system without seams or overlap of the lining.
6.) Signage.
7.) Orange safety fencing or equivalent.
8.) Straw bales, sandbags (bags should be ultraviolet-stabilized geotextile fabric), soil material, or other appropriate materials that can be used to construct a containment system (above grade systems).

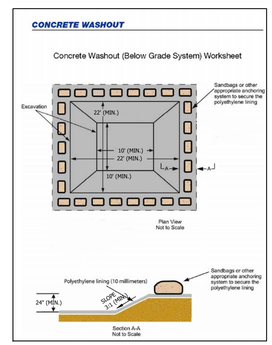
Installation:

1.) Dependent upon the type of system, either excavate the pit or install the containment system.
2.) A base shall be constructed and prepared that is free of rocks and other debris that may cause tears or punctures in the polyethylene lining.
3.) Install the polyethylene lining. For excavated systems, the lining should extend over the entire excavation. The lining for bermed systems should be installed over the pooling area with enough material to extend the lining over the berm or containment system. The lining should be secured with pins, staples, or other fasteners.
4.) Place flags, safety fencing, or equivalent to provide a barrier to construction equipment and other traffic.
5.) Place a non-collapsing, non-water holding cover over the washout facility prior to a predicted rainfall event to prevent accumulation of water and possible overflow of the system (optional).
6.) Install signage that identifies concrete washout areas.
7.) Post signs directing contractors and suppliers to designated locations.

Maintenance:

1.) Inspect daily and after each storm event.
2.) Inspect the integrity of the overall structure including, where applicable, the containment system.
3.) Inspect the system for leaks, spills, and tracking of soil by equipment.
4.) Inspect the polyethylene lining for failure, including tears and punctures.
5.) Once concrete wastes harden, remove and dispose of the material.
6.) Excess concrete should be removed when the washout system reaches 50 percent of the design capacity. Use of the system should be discontinued until appropriate measures can be initiated to clean the structure. Prefabricated systems should also utilize this criterion, unless the manufacturer has alternate specifications.
7.) Upon removal of the solids, inspect the structure. Repair the structure as needed or construct a new system.
8.) Dispose of all concrete in a legal manner. Reuse the material on site, recycle, or haul the material to an approved construction/demolition landfill site. Recycling of material is encouraged. The waste material can be used for multiple applications including but not limited to roadbeds and building. The availability for recycling should be checked locally.
9.) The plastic liner should be replaced after every cleaning; the removal of material will usually damage the lining.
10.) The concrete washout system should be repaired or enlarged as necessary to maintain capacity for concrete waste.
11.) Concrete washout systems are designed to promote evaporation. However, if the liquids do not evaporate and the system is near capacity it may be necessary to vacuum or remove the liquids and dispose of them in an acceptable method. Disposal may be allowed at the local sanitary sewer authority provided their National Pollutant Discharge Elimination System permits allow for acceptance of this material. Another option would be to utilize a secondary containment system or basin for further dewatering.
12.) Prefabricated units are often pumped and the company supplying the unit provides this service.
13.) Inspect construction activities on a regular basis to ensure suppliers, contractors, and others are utilizing designated washout areas. If concrete waste is being disposed of improperly, identify the violators and take appropriate action.
14.) When concrete washout systems are no longer required, the concrete washout systems shall be closed. Dispose of all hardened concrete and other materials used to construct the system.
15.) Holes, depressions and other land disturbances associated with the system should be backfilled, graded, and stabilized.





FILTER TUBE / FILTER SOCK

Purpose: To trap sediment by intercepting runoff and reducing the velocity of sheet flow or concentrated flow. Filter socks capture sediment by ponding water to allow settling and deposition.

Requirements:

Materials: Geotextile fabric sock or a non-biodegradable netting matrix.

Permeable Materials:

Compost / Mulch:

1. Feedstocks may include, but are not limited to, well-composted vegetable matter, leaves, yard trimmings, food scraps, composted manures, paper fiber, wood bark, Class A biosolids (as defined in federal regulations 40 CFR Part 503), or any combination thereof.
2. Compost shall be produced using an aerobic composting process meeting CFR 503 Regulations, including time and temperature data indicating effective weed seed, pathogen and insect larvae kill.
3. Compost shall be well decomposed, stable, and weed free.
4. Variable particle size with maximum dimensions of two inches in length, one-half inch in width, and one-half inch in depth.
5. Refuse free (less than one percent by weight).
6. Free of any contaminants and materials toxic to plant growth.
7. Inert materials not to exceed one percent by dry weight.
8. pH of 5.5 to 8.0.
9. Carbon-nitrogen ratio not to exceed 100.
10. Moisture content not to exceed 45 percent by dry weight.

Aggregate:

1. INDOT CA No. 5 or No. 8 aggregate.

Straw, Excelsior, etc.:

1. Premanufactured.

Anchoring Method: 2" x 2" hardwood or steel posts.

Bonding Agents (optional):

Tackifiers, flocculants, or microbial additives may be used to remove sediment and/or additional pollutants from storm water runoff. (All additives combined with compost materials should be tested for physical results at a certified erosion and sediment control laboratory and biologically tested for elevated beneficial microorganisms at a United States Compost Council, Seal of Testing Assurance approved testing laboratory.)

Installation:

1. Lay out the location of the filter sock barrier so that it is parallel to the contour of the slope and at least 10 feet beyond the toe of the slope to provide a sediment storage area. Turn the ends of the filter sock barrier up slope such that the barrier end terminates at a higher elevation than the top of the filter sock barrier at its lowest point.
2. Excavate a trench with a depth and width equal to at least one-fourth the diameter of the filter sock or follow the manufacturer's recommendations. Where applicable, the trench may also be excavated upslope of a curb or sidewalk. Placing product against the curb or sidewalk will provide additional stability and resistance to surface flow.
3. Construct the filter sock or utilize a pre-manufactured product. For compost use a pneumatic blower or similar device to provide adequate and consistent fill in the sock. (Seed or sod may be applied at the time of installation for permanent applications.)
4. If more than one sock is placed in a row, the socks should be overlapped; not abutted.
5. Anchor the filter sock barrier in place by driving posts through the barrier and into the underlying soil material. Posts should be spaced no more than five feet apart and driven through the middle of the sock. The posts should be driven a minimum of 18 inches deep into the soil. The stake should be flush with the top of the sock.
6. Backfill the trench with excavated soil placed against the filter sock barrier to ground level on the down-slope side and to two inches above the ground level on the up-slope side of the filter sock barrier. Compact the fill material to keep it in place.

Options for installation:

1. These products may be placed in a series on the contour at intervals on a slope.
2. Follow the manufacturer's recommendations for this application, including spacing and diameter of product.
3. This application will require careful layout and installation. Alternatives, including immediate stabilization, should be considered as the first alternative. This application also requires extensive maintenance and daily inspections.
4. Typical applications include:
   1. Slopes less than 20 percent (5:1). Place socks at a maximum interval of 20 feet (a closer spacing is more effective).
   2. Slopes between 20 percent (5:1) and less than 50 percent (2:1). Place socks at a maximum interval of 15 feet (a closer spacing is more effective).
   3. Slopes greater than 50 percent (2:1). Place socks at a maximum interval of 10 feet (a closer spacing is more effective).

Maintenance:

1. Inspect within 24 hours of a rain event and at least once every seven calender days. When installed in series at intervals on a slope, inspection should be done daily.
2. Remove accumulated sediment when it reaches one-quarter the height of the filter sock.
3. Inspect to ensure that the sock is maintaining its integrity and producing adequate flow.
4. Repair eroded and damaged areas.
5. If ponding becomes excessive, socks should be removed and either reconstructed or a new product installed.
6. Reseed, if applicable.
7. If the filter sock is not designed as a permanent filter or part of the natural landscape and the contributing drainage area has been stabilized, use a blade or knife to cut open sock and use a bulldozer, loader, rake, or other device to incorporate the organic material into the soil, or spread it over the top of the soil surface for final seeding. Remove and dispose of sock if necessary.

TOPSOIL SALVAGE & UTILIZATION

Purpose: To provide a method of preserving topsoil for use in establishing vegetation to achieve final site stabilization.

Specifications:

Material

Typically the darker, friable, loamy surface layer of soil found immediately below vegetation.

Storage Area

1. Free of stumps, rock, and construction debris.
2. Stockpile covered with vegetation or a tarp.
3. Surrounded by a sediment barrier or sediment filter.
4. Stockpile outside rooting zone of trees to be protected.

Application:

Salvaging and Stockpiling Topsoil

1. Determine depth and suitability of topsoil at site.
2. Prior to stripping topsoil, install any site-specific down slope measures needed to control storm water runoff and sedimentation.
3. Remove soil material no deeper than the "surface soil".
4. Stockpile the material in accessible locations that will not interfere with other construction activities or block drainage.
5. Stockpiled soil should be temporarily seeded and surrounded by a sediment control measure.

Spreading Topsoil

1. Prior to applying topsoil, grade the subsoil and roughen the top three to four inches by disking.
2. Apply topsoil evenly to a depth of a minimum of four inches, then compact slightly to improve contact with the subsoil.
3. Do not apply topsoil when the site is wet, muddy, or frozen.
4. After spreading the topsoil, grade and stabilize the site.

Maintenance:

1. Inspect daily.
2. Check for damage to perimeter barrier; repair immediately.
3. Check for erosion or damage to newly spread topsoil; repair immediately and revegetate.

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MUNSTER CHRISTIAN REFORMED CHURCH
214 RIDGE ROAD, MUNSTER, IN 46321

STORM WATER POLLUTION PREVENTION PLAN

REVISIONS:
DATE: 04-22-2022

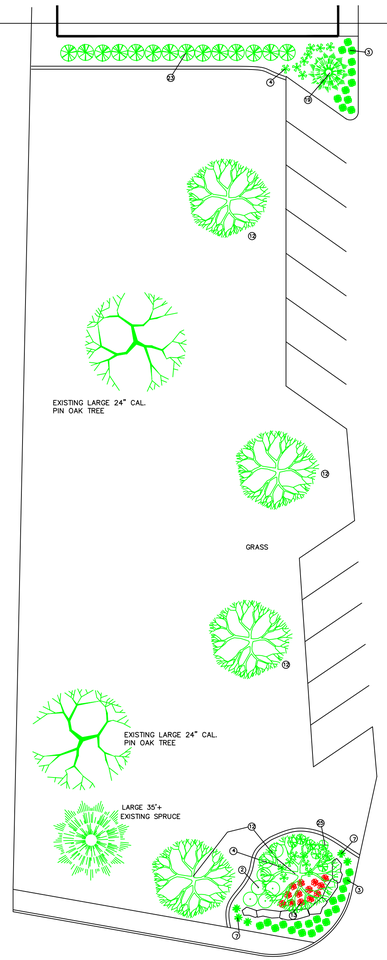
CLIENT:
c/o Pastor Jim Hollendoner
Munster Church
214 Ridge Road
Munster, IN 46321

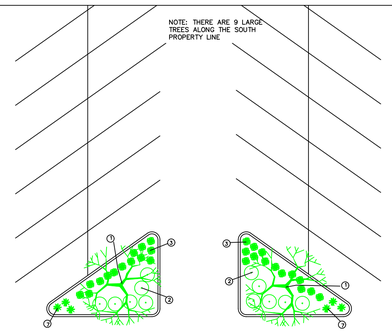
JOB NO: 2022-5015

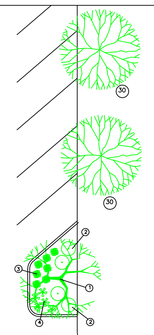
SCALE: 1"=30'

SHEET
C-6.1

FILE NO: Z:\2022-5015 MCRC\dwg\2022-5015 SWPPP Details.dwg 4/22/2022 11:18:30 AM CDT







PLANT IDENTIFICATION

	COMMON NAME	BOTANICAL NAME
1.	ESPRESSO KENTUCKY COFFEE TREE	GYMNOCLADUS DIOICUS 3"
2.	GLOBE YEW	TAXUS X MEDIA DENSIFORMIS 18-24"
3.	STELLA de ORO DAYLIES	HEMEROCALLUS STELLA de ORO # 1
4.	PATRIOT HOSTA	HOSTA PATRIOT # 1
5.	HICKS YEW	TAXUS X MEDIA HICKSII 2'
6.	QUICK FIRE HYDRANGEA	HYDRANGEA PANICULATA BULK # 5
7.	CHEYENNE SKY SWITCH GRASS	PANICUM VIRGATUM CHEYENNE SKY # 1
8.	KARENS AZALEA	AZALEA KARENS 3 GAL
9	SPILLED WINE WEIGELA	WEIGELA FLORIDA SPILLED WINE 3 GAL
10.	CINDERELLA CRAB TREE	MALUS CINZAM 5-6'
11.	CATS PAJAMAS CATMINT	NEPETA CATS PAJAMAS # 1
12.	SUGAR MAPLE TREE	ACER SACCHARUM 3-4"
13.	CHERRY TRUFFLES CORALBELLS	HEUCHERA CHERRY TRUFFLES # 1
14.	SUMMER CRUSH HYDRANGEA	HYDRANGEA MACROPHYLLUM SUMMER CRUSH
15.	OBSIDIAN CORALBELLS	HEUCHERA OBSIDIAN # 1
16.	TUFF STUFF HYDRANGEA	HYDRANGEA MACROPHYLLA BAILMER # 3
17.	AUTUMN BRILLIANCE SERVICEBERRY	AMELANCHIER AUTUMN BRILLIANCE 12'
18.	REGAL PRINCE COLUMNAR OAK	QUERCUS ROBUR X BICOLOR 4-5"
19.	COLUNNAR BLUE SPRUCE	PICEA PUNGENS FASTIGIATA 9'
20.	ENDLESS SUMMER HYDRANGEA	HDRANGEA MACROPHYLLA BAILMER # 5
21.	DOUBLE RED KNOCKOUT ROSE	ROSA RADTKO # 2
22.	COREOPSIS ZAGREB	COREOPSIS VERTICILLATA ZAGREB #1
23.	RED KODIAK DIERVILLA	DIERVILLA G2X 885411 # 3
24.	EMERALD GREEN ARBORVITAE	THUJA OCCIDENTALIS SMARAGD 6'
25.	INVINCIBELLE SPIRIT HYDRANGEA	HYDRANGEA ARBORESCENS NCHA2 # 3
26.	GREEN VELVET BOXWOOD	BUXUS GREEN VELVET 18"
27.	LINESVILLE ARBOVITAE	THUJA OCCIDENTALIS LINESVILLE # 3
28.	STRAWBERRY SEDUCTION YARROW	ACHILLA MILLEFOLIUM STRAWBERRY SEDUCTION
29.	EASTERN REDBUD TREE	CERCIS CANADENSIS
30.	RED MAPLE TREE	ACER RUBRUM 2.5"

K & D LANDSCAPE INDUSTRIES, INC.		
MUNSTER CHRISTIAN REFORMED CHURCH MUNSTER, IN. DETAIL DWG. NEW ADDITION – EAST SIDE		
SCALE: 1" = 12'	DWN BY: FEK	DATE: 6/4/2022