

**POST BID  
ADDENDUM  
NO. 5**

**August 09, 2022**

**Additions and Renovations to Edgewood Intermediate School  
7620 E Edgewood Ave.  
Indianapolis, IN, 46239**

**TO: ALL BIDDERS OF RECORD**

This Addendum forms a part of and modifies the Bidding Requirements, Contract Forms, Contract Conditions, the Specifications and the Drawings dated May 23, 2022, by Gibraltar Design (Architect). Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of Page ADD 5 - 1 and attached Gibraltar Design Addendum No. 5, dated August 9, 2022, consisting of 1 page (AD.05-1) and Drawing Sheets: C-100, C-101, C-102, C-103, C-104, C-107, and C-108.

**GENERAL NOTE**

**Combination Bids:** Combination Bids will not be accepted if individual bids for each Bid Category are not provided with the Combination Bid.

**Below is the link for the Optional Virtual Bid Opening, which Bids are due August 16, at 2:00PM (local time)**

**Microsoft Teams meeting**

**Join on your computer or mobile app**

[Click here to join the meeting](#)

**Or call in (audio only)**

[+1 317-762-3960,,972016988#](#) United States, Indianapolis

Phone Conference ID: 972 016 988#

**Pre-Award Conferences Schedule**

- BC01 – General Trades (8/17/2022 @ 10:00AM – Local Time)
- BC12 – Site Demolition, Earthwork, & Site Utilities (8/17/2022 @ 11:00AM – Local Time)

## ADDENDUM FIVE

**Addendum Five (AD.05)** to the drawings and specifications prepared by Gibraltar Design and The Skillman Corporation for **Edgewood Intermediate School Additions and Renovations [REBID General Trades]** for Franklin Township Community School Corporation, Indianapolis, Indiana.

All Contractors bidding on this project shall read all of the items covered below and shall comply with all of the requirements as set forth, including any necessary refinements or additions generated by this Addendum, and required by the intent of the original contract documents. All Contractors shall acknowledge on their bid form that they have received this Addendum, Addendum One, Addendum Two, Addendum Three, Addendum Four, and include the appropriate content of same within their bid proposal.

## SPECIFICATIONS

- 1. Specification Section 03 30 00                      Concrete**
  - A. W. R. Meadows, Inc. is hereby approved to bid LIQUI-HARD, liquid densifier sealer and 1100, for concrete curing compound for this project. All requirements of the Drawings and Specifications shall be met, including the color selections.
- 2. Specification Section 03 30 00                      Concrete**
  - A. AVECS is hereby approved to bid PRO-ACT MVRA for moisture vapor reduction admixture for this project. All requirements of the Drawings and Specifications shall be met, including the color selections.

## DRAWINGS

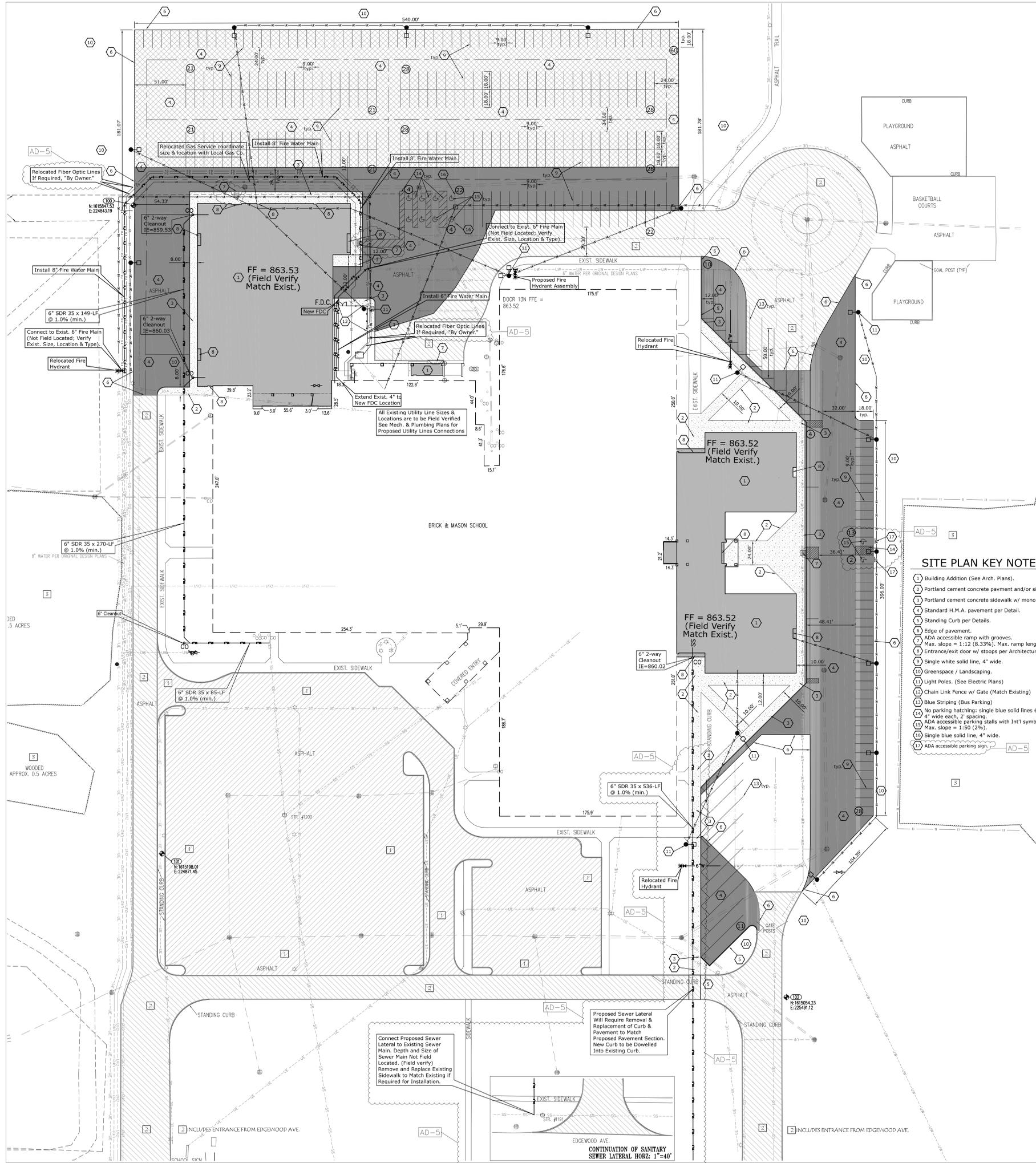
- 1. Sheet C-100, C-101, C-102, C-103, C-104, C-107, and C-108**
  - A. Refer to Seven (7) revised full size drawings, included in this Addendum, for revisions.

Pages 1 inclusive, and Seven (7) Full-Size Drawings constitute the total makeup of **Addendum Five**.



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**UTILITY NOTES**

The Contractor is cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of the respective utility companies, and measurements taken in the field. This information is not to be relied upon as being exact or complete. The Contractor shall notify all utility companies & the State's underground locate service at least 2 (business) days before commencing excavation to request the utilities be located in the field.

The underground utilities not marked as a result of requesting an underground locate are scaled and approximated from various surveys, grading plans, site plans, and road plans.

If any existing structures/utilities to remain are damaged during construction, it shall be the Contractors responsibility to repair and/or replace the damaged structure/utility as necessary to return it to existing conditions or better.

The Contractor shall be responsible for notifying all property owners that will experience an interruption to their utilities caused by this project.

Construction shall comply & be in conformance with all applicable governing codes and be constructed to same. Material specifications shall be in conformance with the State Department of Transportation's (DOT) standard specifications, latest edition.

Contractor shall provide & maintain traffic control in accordance with the Manual on Uniform Traffic Control Devices, latest edition.

All materials, installation, construction & testing of the water and sewer utilities shall be in conformance with Local Water & Sewer Depts. Standards and Specifications, latest edition.

Contractor shall coordinate the installation of building sewers / service laterals with the local water & sewer depts., building inspector, plumber, and plumbing plans. Installation and materials shall be in conformance with applicable codes, standards, and regulations.

Contractor shall coordinate actual location of proposed utility services with architectural plans.

The Contractor shall install all water and sewer service lines to 5' outside the building for tie-in by the plumber. Water Services shall be C-900, DR-14, PVC.

All fill material shall be in place and compacted before installation of proposed utilities.

All utilities shall be installed, inspected, and approved before backfilling.

Contractor shall maintain a minimum of 48" cover on all waterlines and 36" cover on all sanitary sewer lines.

Install detectable line marking tape with 14-gauge copper tracing wire along the complete length of all lateral lines (and force mains).

All water joints are to be mechanical joints with thrust blocking.

All storm pipe entering structures shall be grouted to assure a watertight connection.

All storm structures shall have a smooth uniform poured mortar invert from invert in to invert out. The inside of all structures where storm pipes connect shall be grouted smooth.

Storm pipe lengths provided are measured to center of structure and/or end of Flared-End Section.

**PAVING LEGEND:**

- Concrete Paving
- Light Duty Asphalt Paving (Lime Stabilize as Alternate)
- Heavy Duty Asphalt Paving (Lime Stabilize as Alternate)

**ALTERNATE BID ITEMS:**

- 1.5 Inch Mill and 1.5 Inch Resurface Remaining Existing Asphalt Restripe to match existing conditions.
- 1.5 Inch Mill and 1.5 Inch Resurface Remaining Existing Asphalt Restripe to match existing conditions.
- Lime Stabilize Base of New Asphalt Paving

**SANITARY DATA TABLE**

STR. #1187 MANHOLE TC=861.01 8" PVC INV(N) = 842.66 (PIPES RUNNING EAST AND WEST TOO DEEP TO MEASURE CONVENTIONALLY)	STR. #215 MANHOLE TC=862.88 (STRUCTURE IS BOLTED-UNABLE TO OPEN)
STR. #1232 MANHOLE TC=858.53 (PIPES RUNNING EAST AND WEST TOO DEEP TO MEASURE CONVENTIONALLY)	STR. #216 MANHOLE TC=863.05 (STRUCTURE IS BOLTED-UNABLE TO OPEN)
STR. #1200 MANHOLE TC=860.17 8" PVC INV(N) = 850.64 8" PVC INV(E) = 851.20 8" PVC INV(S) = 850.61	STR. #218 MANHOLE TC=863.14 (NO INVERT. PIPE RUNS THROUGH STRUCTURE WITHOUT EXPOSURE)
STR. #213 MANHOLE TC=862.91 (STRUCTURE IS BOLTED-UNABLE TO OPEN)	STR. #217 MANHOLE TC=863.01 (NO INVERT. PIPE RUNS THROUGH STRUCTURE WITHOUT EXPOSURE)
STR. #1214 MANHOLE TC=862.87 (STRUCTURE IS BOLTED-UNABLE TO OPEN)	STR. #219 MANHOLE TC=863.43 (DEEPER THAN AVAILABLE MEASURING EQUIPMENT)

**SITE PLAN KEY NOTES**

- 1 Building Addition (See Arch. Plans).
- 2 Portland cement concrete sidewalk and/or seewalk.
- 3 Portland cement concrete sidewalk w/ monolithic curb.
- 4 Standard H.M.A. pavement per Detail.
- 5 Standing Curb per Details.
- 6 Edge of pavement.
- 7 ADA accessible ramp with grooves.  
Max. slope = 1:12 (8.33%). Max. ramp length = 6 ft.
- 8 Entrance/exit door w/ stoops per Architectural Plans.
- 9 Single white solid line, 4" wide.
- 10 Greenspace / Landscaping.
- 11 Light Poles. (See Electric Plans)
- 12 Chain Link Fence w/ Gate (Match Existing)
- 13 Blue Striping (Bus Parking)
- 14 No parking hatching; single blue solid lines @ 45°, 4" wide each, 2' spacing.
- 15 ADA accessible parking stalls with Int'l symbol.
- 16 Single blue solid line, 4" wide.
- 17 ADA accessible parking sign.

**PROPOSED LEGEND**

- FIRE HYDRANT (COLOR RED)
- WATER VALVE
- 4" DOMESTIC WATER SERVICE
- 2" WATER SERVICE METER & PIT
- CABLE TV
- ELECTRIC SERVICE & METER BANK
- TELEPHONE
- UNDERGROUND ELECTRIC
- UNDERGROUND GAS
- UNDERGROUND FIBER OPTIC OR TELECOM
- 8" WATER CONNECTION (C-900, DR-14, PVC)
- 6" WATER FIRE (C-900, DR-14, PVC)
- 6" WATER SERVICE (C-900, DR-14, PVC)
- 6" SDR 35 PVC SANITARY SEWER LATERAL
- PAD-MOUNTED (ELEC.) TRANSFORMER
- GAS METER
- 6" SANITARY SEWER LATERAL (1.04% (min.) SLOPE)
- SANITARY SEWER CLEAN-OUT (TYPE 2)
- PROPOSED SANITARY SEWER EASEMENT
- PROPOSED CHAIN LINK FENCE
- TEMPORARY ORANGE CONSTRUCTION FENCE

**NOTES:**

1. ALL DIMENSIONS TO FACE OF CURB (FC), EDGE/PAV'T AND/OR FACE OF BUILDING UNLESS OTHERWISE NOTED.
2. VERIFY BUILDING DIMENSIONS WITH ARCHITECTURAL PLANS.
3. ONLY MAJOR/OVERALL BUILDING DIMENSIONS SHOWN HEREIN.
4. NO BOUNDARY OR TOPOGRAPHIC SURVEY WAS PERFORMED BY CASH WAGNER & ASSOCIATES.
5. ALL DISTURBED, NON-PAVED AREAS ON THE PROJECT SITE SHALL BE SEEDDED, BY SITE CONTRACTOR.

**UTILITY NOTE FROM SURVEYOR:**

This survey reflects above ground indications of utilities and information available from utility companies. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated, although he does certify that they are located as accurately as possible from the information available. The surveyor has not physically located the underground utilities.

**EXISTING LEGEND:**

DESCRIPTION:	DESCRIPTION:
BENCH MARK	WATER VALVE
SECTION CORNER	FIRE HYDRANT
REBAR FOUND	WATER METER
REBAR SET	SANITARY MANHOLE
POWER POLE	CLEAN OUT
GUY WIRE	CURB INLET
ELECTRIC TRANSFORMER	INLET
ELECTRIC METER BOX	DRAINAGE MANHOLE
LIGHT POLE	MANHOLE
AIR CONDITIONER	GAS METER
GROUND LIGHT	GAS VALVE
UTILITY PEDESTAL	RIGHT-OF-WAY LINE
MAIL BOX	UNDERGROUND SAN. SEWER
SIGN	OVERHEAD ELECTRIC LINE
FLAG POLE	UNDERGROUND ELECTRIC
DECIDUOUS TREE	WATER LINE
CONIFEROUS TREE	GAS LINE



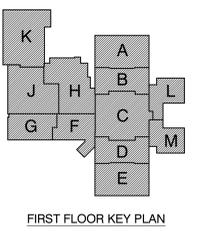
**GIBRALTAR DESIGN**  
ARCHITECTURE ENGINEERING INTERIOR DESIGN

PROJECT  
ADDITIONS AND RENOVATIONS TO  
**EDGEWOOD INTERMEDIATE SCHOOL**  
FRANKLIN TOWNSHIP COMMUNITY SCHOOL CORPORATION  
INDIANAPOLIS, INDIANA

CIVIL CONSULTANT



**CASH WAGNER & ASSOCIATES, PC**  
CONSULTING ENGINEERING SURVEYING  
www.cashwagner.com  
402 E. 13th STREET  
SUITE 101  
JASPER, IN 47546  
PH: 812.634.5015  
FAX: 812.634.5017  
CELL: 812.631.3964  
E-MAIL: NWAGNER@CASHWAGNER.COM



FIRST FLOOR KEY PLAN

**GIBRALTAR DESIGN**  
9102 N. Meridian St., Ste. 300  
Indianapolis, IN 46260  
Homepage: www.GibraltarDesign.com  
Email: info@GibraltarDesign.com  
Phone: 317.580.5777 Fax: 317.580.5778

PROJECT  
21-155  
DATE  
08/09/22  
COORDINATED BY  
NRW  
DRAWN BY  
DJM  
CHECKED BY  
NRW

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REVISIONS

MARK	DATE	ISSUED FOR

DRAWING  
SITE AND UTILITY PLAN

PROJECT  
ADDITIONS AND RENOVATIONS TO  
EDGEWOOD INTERMEDIATE SCHOOL

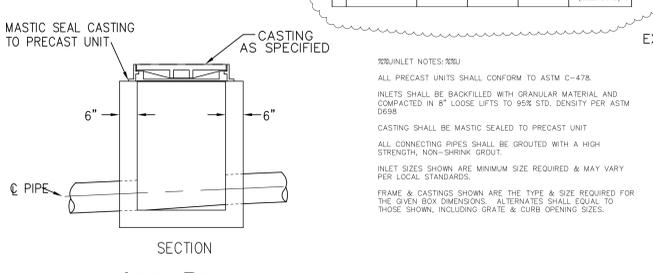
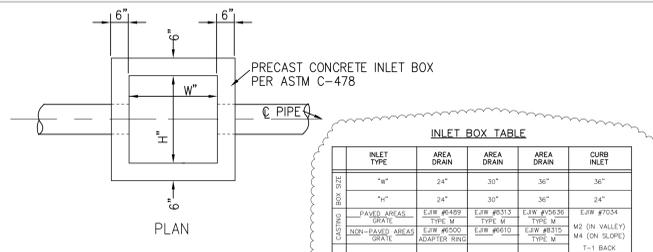
CALL TOLL FREE  
**1-800-382-5544**  
FOR INDIANA STATE LAW 02-1-26  
IT IS AGAINST THE LAW TO EXCAVATE WITHOUT  
NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO  
(2) WORKING DAYS BEFORE COMMENCING WORK.

GIBRALTAR DESIGN SHEET  
**C-101**

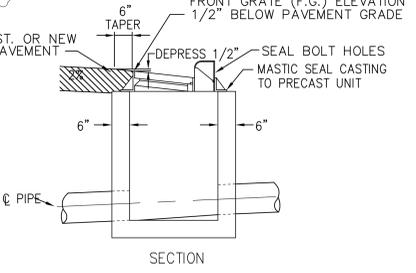
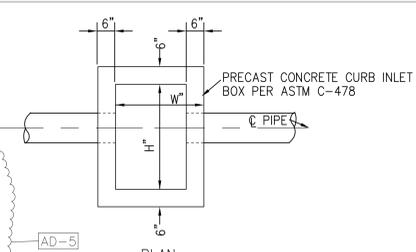








SECTION AREA DRAIN



SECTION CURB INLET

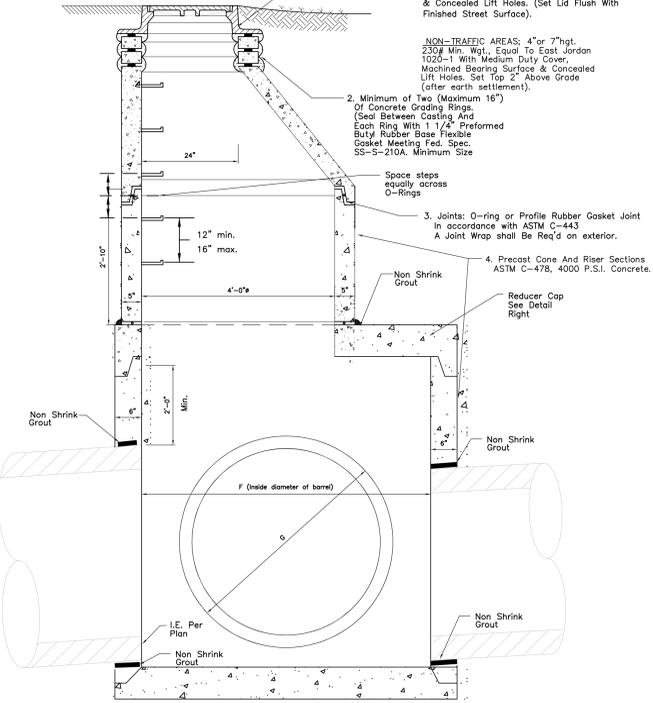
**PRECAST INLET BOX**

**INLET BOX TABLE**

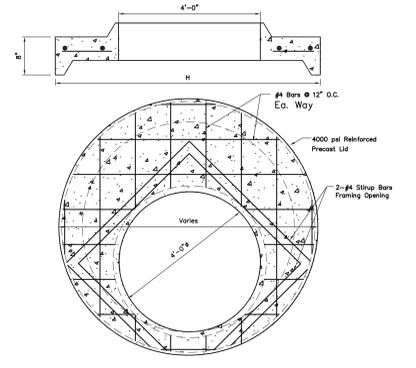
INLET TYPE	AREA DRAIN	AREA DRAIN	AREA DRAIN	CURB INLET
"W"	24"	30"	36"	24"
"H"	24"	30"	36"	24"

**NOTES**

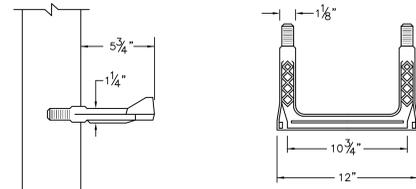
- Manhole Frame & Cover: ASTM A-48, Latest Edition, Class 35 with 24" Diameter Frame. Traffic Areas: 7" Min. Hgt. 365# Min. Wgt., Equal to East Jordan 1020-3 Heavy Duty Cover, Machined Bearing Surface & Concealed Lift Holes. (Set Lid Flush With Finished Street Surface).
- Minimum of Two (Maximum 16") Concrete Grating Rings (Seal Between Casting And Each Ring With 1/2" Preformed Butyl Rubber Base Flexible Gasket Meeting Fed. Spec. SS-5-210A, Minimum Size).
- Joints: O-ring or Profile Rubber Gasket Joint in accordance with ASTM C-443. A Joint Wrap shall be Req'd on exterior.
- Precast Cone And Riser Sections ASTM C-478, 4000 P.S.I. Concrete.



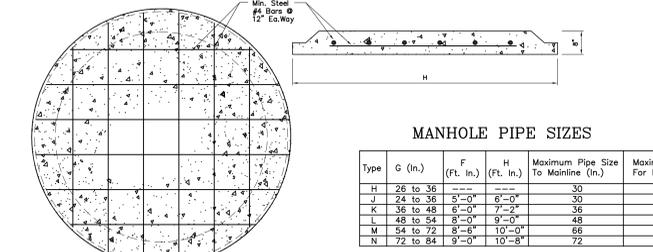
MANHOLE NOT TO SCALE



REDUCER CAP FOR PRECAST MANHOLE Scale: 1/2"=1'-0"



MANHOLE STEP MA PSI-PF MANHOLE STEPS: 1/2" DIA. A.S.T.M. A-615 GRADE 60 STEEL, DEFORMED REINFORCING ROD COVERED WITH A.S.T.M. 2146-68, TYPE II, GRADE 16906 COPOLYMER PLASTIC.



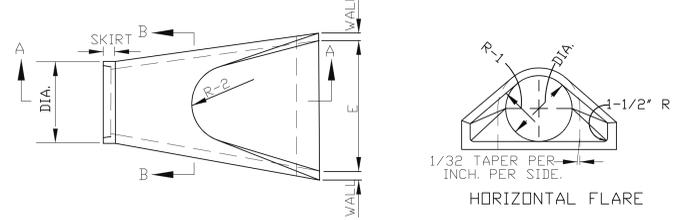
BASE FOR PRECAST MANHOLE Scale: 1/2"=1'-0"

**MANHOLE PIPE SIZES**

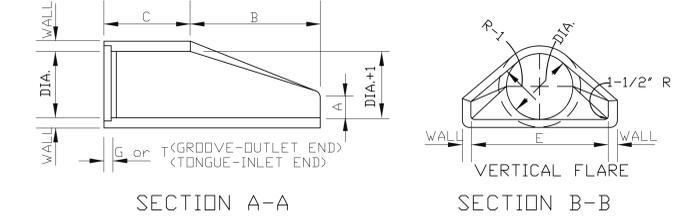
Type	G (in.)	F (ft. in.)	H (ft. in.)	Maximum Pipe Size To Mainline (in.)	Maximum Pipe Size For Mainline (in.)
H	26 to 36	5'-0"	8'-0"	30	36
J	24 to 36	5'-0"	8'-0"	30	36
K	36 to 48	6'-0"	7'-2"	36	48
L	48 to 54	8'-0"	9'-0"	48	54
M	54 to 72	8'-0"	10'-0"	66	72
N	72 to 84	9'-0"	10'-8"	72	84

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 7/8	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

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

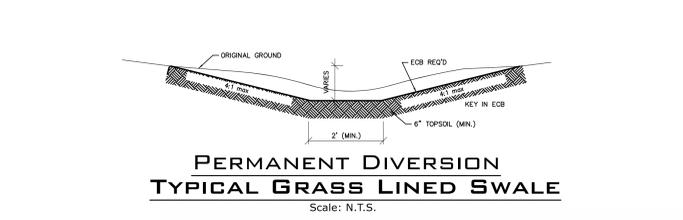


HORIZONTAL FLARE

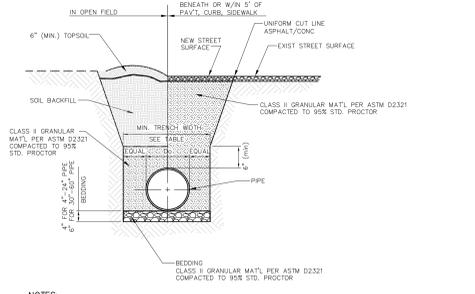


VERTICAL FLARE

**PRECAST CONCRETE END SECTION**



PERMANENT DIVERSION TYPICAL GRASS LINED SWALE Scale: N.T.S.

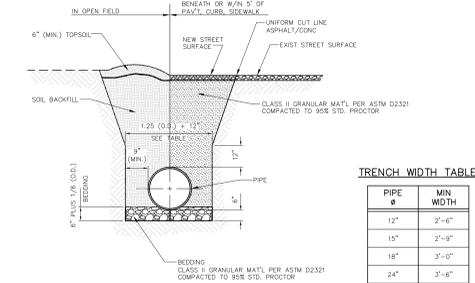


**NOTES:**

- NEW STREET SURFACE SHALL COMPLY WITH LOCAL AUTHORITY JURISDICTION.
- TRENCH WALLS TO BE SUPPORTED AS REQUIRED BY OSHA.
- MIN COVER TO BE BELOW OFFICIAL STREET GRADE.

**TYPICAL TRENCH SECTION HDPE PIPE (N-12 OR EQUAL)**

N.T.S.



**NOTES:**

- NEW STREET SURFACE SHALL COMPLY WITH LOCAL AUTHORITY JURISDICTION.
- TRENCH WALLS TO BE SUPPORTED AS REQUIRED BY OSHA.
- MIN COVER TO BE BELOW OFFICIAL STREET GRADE.

**TYPICAL TRENCH SECTION REINFORCED CONCRETE PIPE**

N.T.S.

**TRENCH WIDTH TABLE**

PIPE DIA.	MIN. WIDTH
12"	2'-0"
15"	2'-0"
18"	3'-0"
24"	3'-0"
30"	4'-1 1/2"
36"	4'-0"
42"	5'-4 1/2"

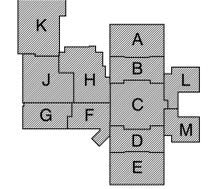


**GIBRALTAR DESIGN**  
ARCHITECTURE • ENGINEERING • INTERIOR DESIGN

PROJECT ADDITIONS AND RENOVATIONS TO **EDGEWOOD INTERMEDIATE SCHOOL**  
FRANKLIN TOWNSHIP COMMUNITY SCHOOL CORPORATION  
INDIANAPOLIS, INDIANA

CIVIL CONSULTANT

**CASH WAGNER & ASSOCIATES**  
402 E. 13th STREET SUITE 1101 JASPER, IN 47546  
PH: 812.634.5015 FAX: 812.634.5017  
CELL: 812.631.3964  
E-MAIL: NWAGNER@CASHWAGNER.COM



FIRST FLOOR KEY PLAN

**GIBRALTAR DESIGN**  
9102 N. Meridian St., Ste. 300 Indianapolis, IN 46260  
Homepage: www.GibraltarDesign.com  
Email: info@GibraltarDesign.com  
Phone: 317.580.5777 Fax: 317.580.5778

PROJECT 21-155  
DATE 08/09/22  
COORDINATED BY NRW  
DRAWN BY DJM  
CHECKED BY NRW

**PROFESSIONAL ENGINEER**  
No. 10201132  
STATE OF INDIANA

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REVISIONS:

MARK	DATE	ISSUED FOR

DRAWING DRAINAGE DETAILS

PROJECT ADDITIONS AND RENOVATIONS TO EDGEWOOD INTERMEDIATE SCHOOL

GIBRALTAR DESIGN SHEET

**C-107**

**CASCADE SEPARATOR DESIGN NOTES**

THE STANDARD CS-8 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

**CONFIGURATION DESCRIPTION**

GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES

**SITE SPECIFIC DATA REQUIREMENTS**

STRUCTURE ID	WATER QUALITY FLOOR RATE (WQFR) (L/SEC)	PEAK FLOW RATE (MGD)	RETURN PERIOD OF PEAK FLOW (YRS)

**PIPE DATA**

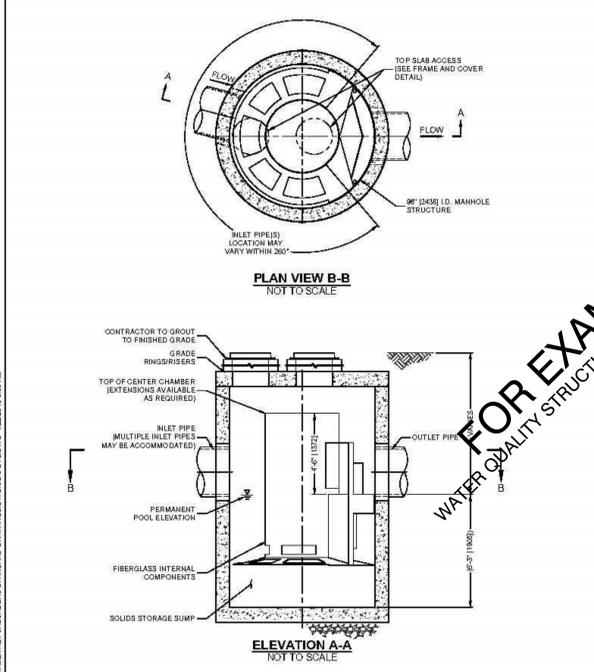
PIPE DATA	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			

**GENERAL NOTES**

- CONTRACTOR TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
- CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
- CONTRACTOR TO PROVIDE STRUCTURE SHALL MEET ASBESTOS HAZARD RATING, ASSIGNING EARTH COVER OF 0-2 INCH, AND GROUNDWATER ELEVATION AT OR BELOW THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET ASBESTOS HAZARD AND BE CAST WITH THE CONTECH LOGO.
- CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
- ALTERNATE UNITS ARE SHOWN IN MILLIMETERS (mm).

**INSTALLATION NOTES**

- ANY SUB-BASE, BACKFILL DEPTH AND/OR ANTI-FLOTTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.



CASCADE separator

**CONTECH ENGINEERED SOLUTIONS LLC**  
8025 Centre Parkway, Suite 100, Columbus, Ohio 43260  
614.351.1122 614.351.7000 614.351.7993 FAX

CS-8 CASCADE SEPARATOR STANDARD DETAIL



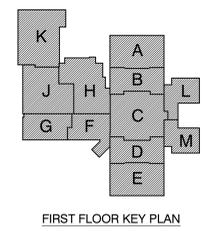
# GIBRALTAR DESIGN

ARCHITECTURE • ENGINEERING • INTERIOR DESIGN

PROJECT  
ADDITIONS AND RENOVATIONS TO  
**EDGEWOOD INTERMEDIATE SCHOOL**  
FRANKLIN TOWNSHIP COMMUNITY SCHOOL CORPORATION  
INDIANAPOLIS, INDIANA

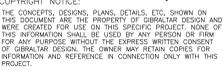
## CIVIL CONSULTANT

**CASH WAGNER & ASSOCIATES, P.C.**  
CONSULTING ENGINEERS/SURVEYORS  
www.cashwagner.com  
402 E. 13th STREET  
SUITE 101  
JASPER, IN 47546  
PH: 812.634.5015  
FAX: 812.634.5017  
CELL: 812.631.3964  
E-MAIL: NWAGNER@CASHWAGNER.COM



**GIBRALTAR DESIGN**  
9102 N. Meridian St., Ste. 300  
Indianapolis, IN 46260  
Homepage: www.GibraltarDesign.com  
Email: info@GibraltarDesign.com  
Phone: 317.580.5777 Fax: 317.580.5778

PROJECT  
21-155  
DATE  
08/09/22  
COORDINATED BY  
NRW  
DRAWN BY  
DJM  
CHECKED BY  
NRW



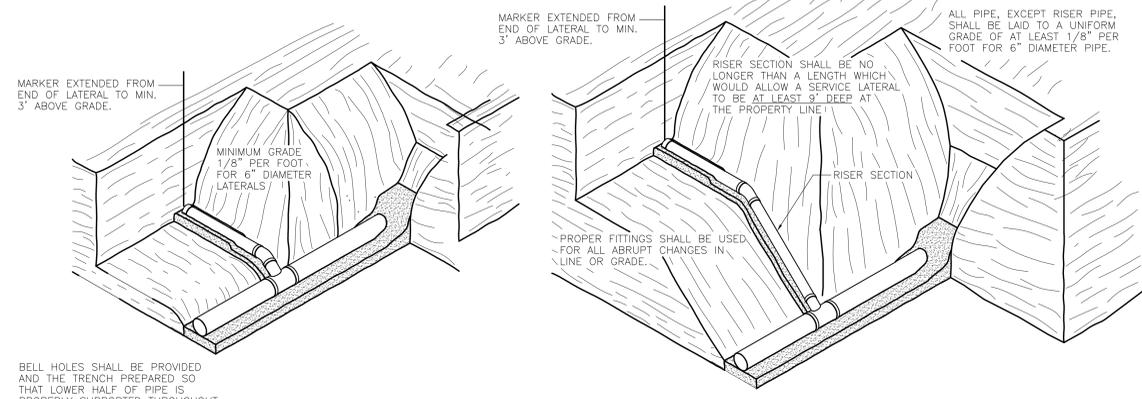
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REVISIONS

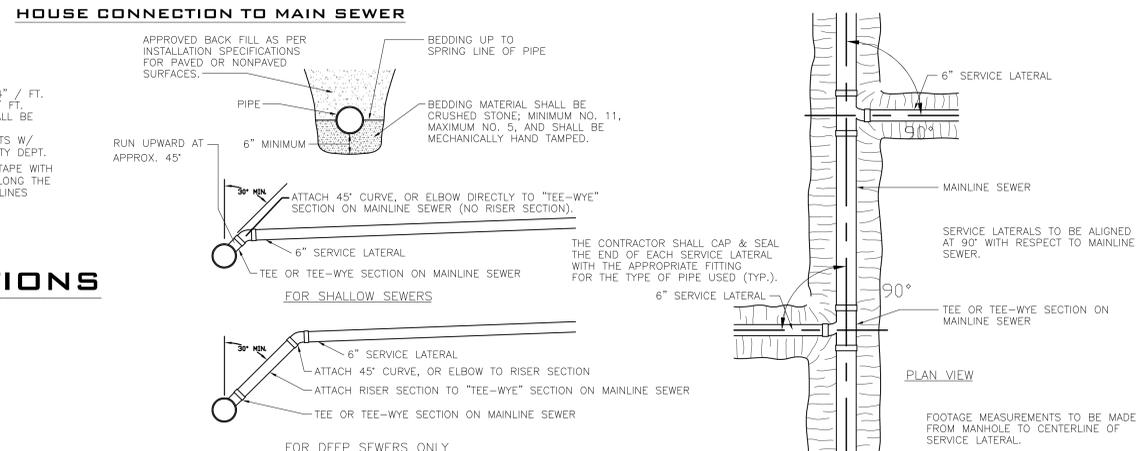
MARK	DATE	ISSUED FOR

DRAWING  
**SANITARY SEWER & WATER DETAILS**

PROJECT  
ADDITIONS AND RENOVATIONS TO  
EDGEWOOD INTERMEDIATE SCHOOL



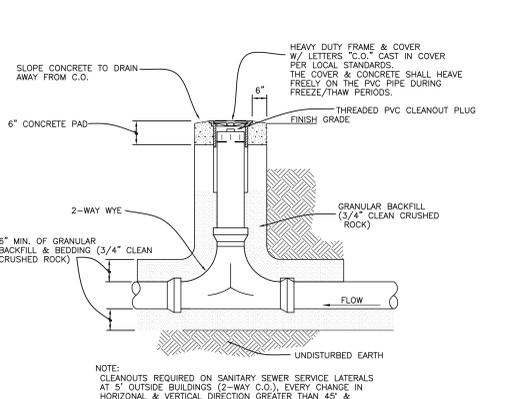
### HOUSE CONNECTION FOR DEEP SEWERS



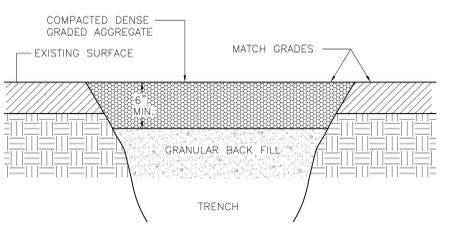
### HOUSE CONNECTION TO MAIN SEWER

- SERVICE LATERAL NOTES:
- 1) NORMAL SERVICE LATERAL SLOPE IS 1/4" / FT.
  - 2) MIN. SERVICE LATERAL SLOPE IS 1/8" / FT.
  - 3) MIN. SERVICE LATERAL MATERIAL SHALL BE 6" DIA.
  - 4) VERIFY SLOPE & MAT'L REQUIREMENTS W/ LOCAL BUILDING INSPECTOR & UTILITY DEPT.
  - 5) INSTALL DETECTABLE LINE MARKING TAPE WITH 14-GAUGE COPPER TRACING WIRE ALONG THE COMPLETE LENGTH OF ALL LATERAL LINES (AND FORCE MAINS)

## LATERAL CONNECTIONS

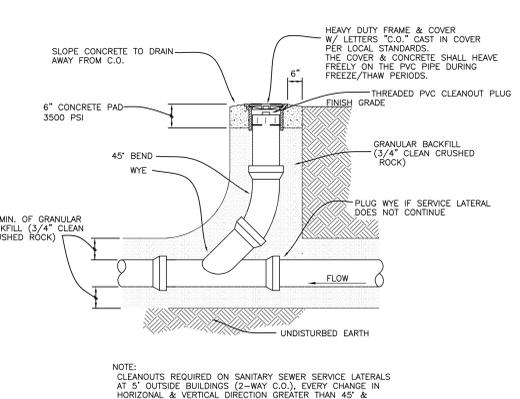


### TWO-WAY CLEANOUT

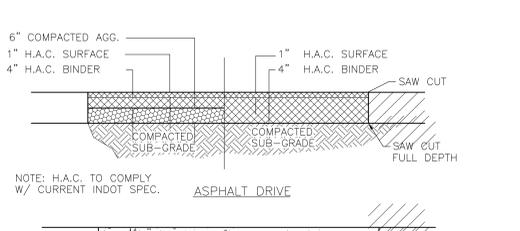


1. CONTRACTOR TO INSTALL A MINIMUM OF 6" OF D.G.A., AND GRADE FLUSH WITH THE EXISTING SURFACE.
2. SURFACE MUST CONTAIN SUFFICIENT FINES TO ASSURE PROPER COMPACTION.
3. IF ADDITIONAL SETTLING OCCURS AFTER THE INSTALLATION OF THE STONE, CONTRACTOR SHALL INSTALL ADDITIONAL STONE TO BRING REPLACEMENT SURFACE UP TO THE LEVEL OF THE EXISTING SURFACE.

### GRAVEL OR STONE PAVEMENT REPAIR



### CLEANOUT



1. ALL PERIMETERS SHALL BE SAW CUT.
2. THICKNESS SPECIFICATIONS SHALL BE IN ACCORDANCE WITH LOCAL STANDARDS. MATCH EXISTING DEPTH (MIN.)

### DRIVEWAY REPAIR

### SEWER TESTING REQUIREMENTS:

SEWER DEFLECTION TESTS SHALL BE PERFORMED ON ALL PROPOSED SANITARY SEWERS UTILIZING A RIGID BALL OR MANDREL HAVING A DIMENSION OF NOT LESS THAN 95 PERCENT OF THE INSIDE PIPE DIAMETER, DEPENDING ON ITS A.S.T.M. SPECIFICATION. THE PIPE SHALL BE MEASURED IN COMPLIANCE WITH A.S.T.M. D-2122. THE TEST SHALL BE PERFORMED BY PULLING THE DEVICE THROUGH EACH PIPE SEGMENT, WITHOUT MECHANICAL PULLING DEVICES, DEFLECTION IN EXCESS OF 5 PERCENT SHALL CONSTITUTE A FAILURE AND THE PIPE SHALL BE RE-ROUNDED OR REPLACED. THEN RE-TESTED. DEFLECTION TESTS SHALL NOT BE PERFORMED UNTIL ALL BACKFILLING HAS BEEN IN PLACE FOR A MINIMUM OF 30 DAYS.

SEWER LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE LOCAL SEWER DEPARTMENT STANDARDS AND SPECIFICATIONS FOR SANITARY SEWERS. ANY PIPE SEGMENTS FAILING TO MEET THE ESTABLISHED STANDARDS CONTAINED THEREIN SHALL BE REPAIRED AND RE-TESTED. SEWER PIPE INFILTRATION SHALL NOT EXCEED 200 GALLONS PER INCH OF DIAMETER PER MILE OF PIPE.

ALL REPAIRS TO SEWERS AND APPURTENANCES (INCLUDING THE EXPENSE TO RE-TEST) SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

ALL (GRAVITY) SEWER MAIN PIPE MATERIAL SHALL BE S.D.R.-26 P.V.C. PER ASTM D3034 OR SCHEDULE 40 P.V.C. PER A.S.T.M. D1785

A HYDROSTATIC TEST SHALL BE PERFORMED ON ALL FORCE MAIN PIPING IN ACCORDANCE WITH APPLICABLE AWWA STANDARDS BASED ON FORCE MAIN MATERIAL AND A.S.T.M. E-103, "STANDARD METHOD FOR HYDROSTATIC TESTING." THE TEST LINE SHALL BE FILLED WITH WATER AT A SLOW RATE TO PREVENT AIR ENTRAPMENT. THE LINE SHALL BE LEFT FOR 24 HOURS PRIOR TO TESTING. TRAPPED AIR SHALL BE EXPELLED THROUGH HIGH POINT BLEED-OFF VALVES. THE TEST LINE SHALL BE PRESSURIZED TO 1.5 TIMES THE PUMP SHUT-OFF HEAD AS DETERMINED BY THE PUMP MFR. PERFORMANCE CURVES OR TO 100 P.S.I., WHICHEVER IS GREATER. THE TEST SHALL BE NO LESS THAN 2 HRS. BUT NO MORE THAN 8 HRS. MAX. ALLOWABLE APPARENT LEAKAGE SHALL BE 11.65 GALLONS PER INCH OF DIA. PER MILE OF PIPE AT A PRESSURE OF 150 P.S.I. NO PIPE INSTALLATION SHALL BE ACCEPTED IF THE LEAKAGE IS GREATER THAN THAT DETERMINED BY THE FOLLOWING FORMULA:

$$L = \frac{SD \cdot P_{avg}}{133,200} \cdot S \cdot D$$

L = ALLOWABLE LEAKAGE IN G.P.H.  
P = AVERAGE TEST PRESSURE  
S = FEET OF PIPE TESTED  
D = NOMINAL PIPE DIA. IN INCHES

ALL FORCE MAIN PIPE MATERIAL SHALL BE PRESSURE RATED SDR-21 PVC PER A.S.T.M. D-2241 OR C-900 PVC PER AWWA.

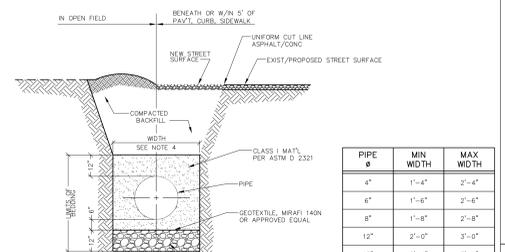
MAXIMUM ALLOWABLE WIDTH OF TRENCH AT TOP OF PIPE

PIPE SIZE	TRENCH WIDTH
6"	24"
8"	26"
10"	28"
12"	30"
15"	33"
18"	36"
21"	39"
24"	42"
27"	45"
30"	48"
36"	60"
42"	66"
48"	70"

### TRENCH WIDTH CHART

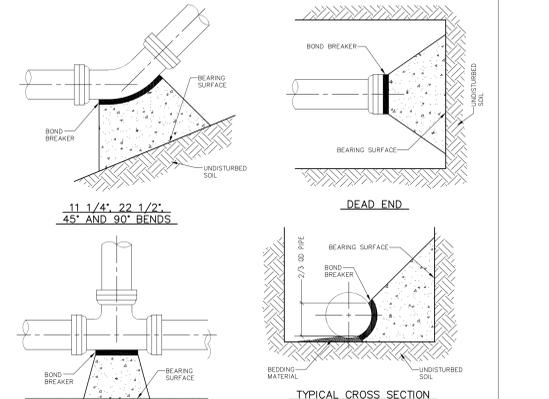
VARIAION FROM THESE STANDARDS SHALL CONFORM TO THE LOCAL STANDARDS AND SHALL BE APPROVED BY THE GOVERNING AGENCY. SHOP DRAWINGS SHALL BE PROVIDED TO ENGINEER FOR APPROVAL.

## WATER DETAILS



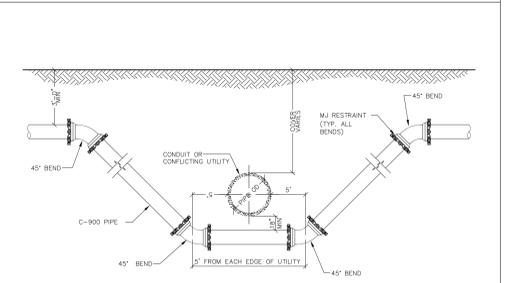
### WATER & SEWER SEPARATION

WHEN MINIMUM WATER AND SEWER (STORM & SANITARY) MAIN CLEARANCE DIMENSIONS CANNOT BE ACHIEVED, WATER AND SEWER PIPE SHALL BE CONSTRUCTED OF SLIP-ON OR MECHANICAL JOINT PIPE COMPLYING WITH AWWA DESIGN STANDARDS AND BE PRESSURE RATED AND TESTED TO 150 PSI TO ASSURE WATER TIGHTNESS PRIOR TO BACKFILLING. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE WATER & SEWER DEPTS. PRIOR TO INSTALLING ANY PIPE WHICH EXCEEDS THESE MINIMUM HORIZONTAL (10') AND VERTICAL (18") CLEARANCES.

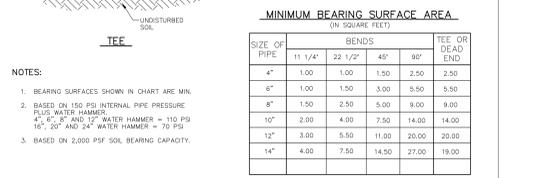


PIPE Ø	MIN WIDTH	MAX WIDTH
4"	1'-4"	2'-4"
6"	1'-6"	2'-6"
8"	1'-8"	2'-8"
12"	2'-0"	3'-0"
16"	2'-4"	3'-4"
20"	2'-8"	3'-8"
24"	4'-0"	5'-0"

### TYPICAL TRENCH SECTION PIPE IN ROCK



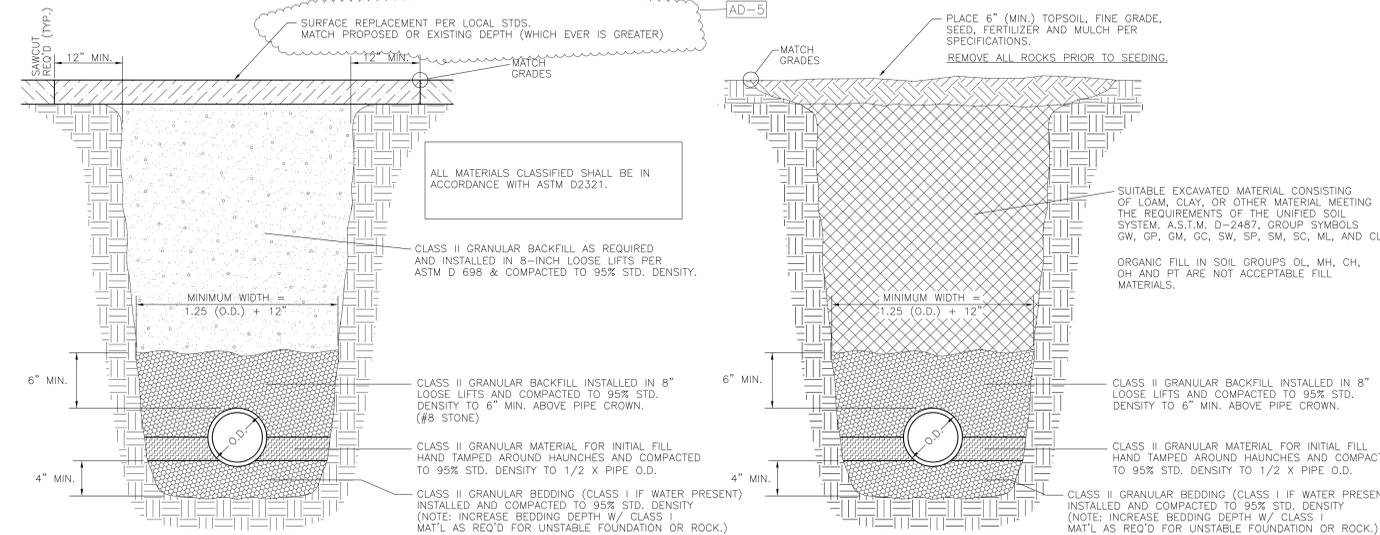
### CROSSING BENEATH CONFLICTING UTILITY



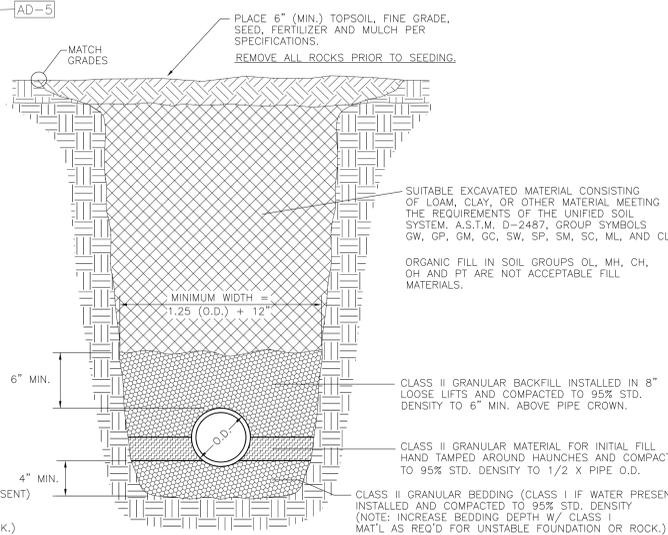
MINIMUM BEARING SURFACE AREA (IN SQUARE FEET)

SIZE OF PIPE	11 1/4"	22 1/2"	48"	90"	TEE OR DEAD END
4"	1.00	1.00	1.50	2.50	2.50
6"	1.50	1.50	3.00	5.50	5.50
8"	2.00	2.50	3.00	9.00	9.00
10"	2.50	4.00	7.50	14.00	14.00
12"	3.50	5.50	11.50	20.00	20.00
14"	4.50	7.50	14.50	27.00	19.00

- NOTES:
1. BEARING SURFACES SHOWN IN CHART ARE MIN.
  2. BASED ON 100 PSI INTERNAL PIPE PRESSURE PLUS WATER HAMMER = 110 PSI
  3. 16", 20" AND 24" WATER HAMMER = 70 PSI
  3. BASED ON 2,000 PSF SOIL BEARING CAPACITY.



### BEDDING & GRANULAR FILL UNDER & WITHIN 5' OF PAVEMENT, CURBS, & SIDEWALKS



### BEDDING & COMMON FILL FOR LAWN INSTALLATION

## SEWER PIPE INSTALLATION