Drain: SRING OF CAMBRIGGE ARAN Drain #: 267

Improvement/Arm: SRINGS OF CAMBRIGGE - SECTION 6+GA

Operator: JOH Date: 7-7-04

Drain Classification: Urban/Rural Year Installed: /996

GIS Drain Input Checklist

- Pull Source Documents for Scanning
- Digitize & Attribute Tile Drains
- Digitize & Attribute Storm Drains
- Digitize & Attribute SSD
- Digitize & Attribute Open Ditch
- Stamp Plans
- Sum drain lengths & Validate
- Enter Improvements into Posse
- Enter Drain Age into Posse
- Sum drain length for Watershed in Posse
- Check Database entries for errors

970

N/a

7"

Ma

J#____

974

90

ga

Gasb 34 Footages for Historical Cost Drain Length Log

Drain-Improvement: SPRINGS OF CAMPRIOGE DRAIN-SPRINGS OF CAMPRIOGE SECTION 6+68

		1	1		i If App	(caloja)
Drain Type:	Size:	Length SUAMERICALI PRANKI	Length (DB Query)	Length Reconcile	Price:	Cost:
SSD	60	4474'	4,4741	5		
SSP RCP	12"	367'	367'	8		
	15"	181	181'	ø		
	18"	181'	429'	ø		
						·
	Sum:	5,451	2,451	<u>_</u> er		
			·			
inal Report:						
Comments:						
					······································	





Kenton C. Ward, Surveyor

Suite 146

776-8495

One Hamilton County Square Noblesville, Indiana 46060-2230 April 18, 1996

To: Hamilton County Drainage Board

Re: Springs of Cambridge Drain, Section 6 & 6A Arm

Attached is a petition, non-enforcement request, plans, calculation, quantity summary and assessment roll for the Springs of Cambridge Section 6 & 6A Arm, Springs of Cambridge Drain. I have reviewed the submittals and petition and have found each to be in proper form.

I have made a personal inspection of the land described in the petition. Upon doing so, I believe that the drain is practicable; will improve the public health; benefit a public highway and be of public utility; and that the costs, damages and expenses of the proposed drain will probably be less than the benefits accruing to the owners of land likely to be benefited. The drain will consist of the following:

6" SSD-4474 ft

15" RCP-181 ft

12" RCP-351 ft 18" RCP-429 ft

The total length of the drain will be 5435 feet.

The subsurface drains (SSD) to be part of the regulated drain are those located under the curbs. Only the main SSD lines which are located within the right of way are to be maintained as regulated drain. Laterals for individual lots will not be considered part of the regulated drain.

I have reviewed the plans and believe the drain will benefit each lot equally. Therefore, I recommend each lot be assessed equally. I also believe that no damages will result to landowners by the construction of this drain. I recommend a maintenance assessment of \$30.00 per lot, \$5.00 per acre for roadways, with a \$30.00 minimum. With this assessment the total annual assessment for this drain/this section will be \$ 15 68 22

Parcels assessed for this drain may be assessed for the Bee Camp Creek Drain at sometime in the future.

I believe this proposed drain meets the requirements for Urban Drain Classification as set out in IC 36-9-27-67 to 69. Therefore, this drain shall be designated as an Urban Drain.

I recommend that upon approval of the above proposed drain that the Board also approve the attached non-enforcement request. This request is for the reduction of the regulated drain easement to those easement widths as shown on the secondary plat for Springs of Cambridge Sections 6 & 6A as recorded in the office of the Hamilton County Recorder.

I recommend the Board set a hearing for this proposed drain for June 1996.

Kenton C. Ward

Hamilton County Surveyor

KCW/ndw



ROCK HILL, NEW YORK 12775-8000 (A Stock Company)

KNOW ALL MEN BY THESE PRESENTS:	
That THE MARINA LIMITED PARTNERSHI	P
(hereinafter called Principal), as Principal, and the FRONTIER II	NSURANCE COMPANY, a corporation of the State of New York, with its Executive
Office in Rock Hill, New York, (hereinafter called Surety), as So	urety, are held and firmly bound unto
HAMILTON COUNTY BOARD OF COMMISSIONE	RS (hereinafter called Obligee), in the full and just sum
of Thirty nine thousand, seven hund	red ninety Dollars (\$ 39,790.00).
To the payment of which sum, well and truly to be made, the administrators, successors and assigns, jointly and severally,	Principal and Surety bind themselves, their and each of their heirs, executors, firmly by these presents.
Signed, sealed and dated this 2ND	day of APRIL ,1996 .
WHEREAS, the Principal has entered into a certain written	contract, dated the APRIL day of
	, A.D. 1996 , with the Obligee for
Storm Sewer Spring	s of Cambridge Section 6
	ON IS SUCH, That, if the Principal shall indemnify the Obligee against any and all e Principal to faithfully perform said contract, then this obligation shall be void;
This bond is executed and accepted upon the following ex	opress conditions precedent:
1. That the Obligee shall faithfully and punctually perf	orm all the terms and conditions of said contract to be performed by the Obligee.
That if the Principal shall abandon said contract or Surety shall have the right at its option to complete said cont	be lawfully compelled by reason of a default to cease operations thereunder, the ract or to sublet the completion thereof.
	ed letter, addressed and mailed to it at its Executive Office, of any breach of said ve come to the knowledge of the Obligee, or the Architect, or Engineer.
The state of the s	s of the contract or specifications respecting guarantees of efficiency or wearing bligated to furnish any other bond covering such provisions of the contract or
5. All suits at law or proceedings in equity to recover contract, and in any event within twelve months from the date	on this bond must be instituted within twleve months after the completion of said te fixed in said contract for its completion.
	THE MARINA LIMITED PARTNERSHIP PRINCIPAL
WITNESS	By Allen E. ROSENBERG GENERAL PARTY FRONTIER INSURANCE COMPANY
WITNESS ETT STORY	By Stan Pregd STAN RIEGEL Attorney-in-fact
FILED	SIAM KIEGEE

APR 0.8 1996

FORLIEF INSURANCE COMPANY

ROCK HILL, NEW YORK 12775-8000 (A Stock Company)

KNOW ALL MEN BY THESE PRESENTS:	
ThatTHE MARINA LIMITED PARTNERSHIP	
(hereinafter called Principal), as Principal, and the FRONTIER INSURAN	ICE COMPANY, a corporation of the State of New York, with its Executive
Office in Rock Hill, New York, (hereinafter called Surety), as Surety, are	e held and firmly bound unto
HAMILTON COUNTY BOARD OF COMMISSIONERS	(hereinafter called Obligee), in the full and just sum
of Twenty seven thousand dollars	Dollars (\$ 27,000.00).
To the payment of which sum, well and truly to be made, the Principal administrators, successors and assigns, jointly and severally, firmly by	all and Surety bind themselves, their and each of their boirs, avenue.
Signed, sealed and dated this 2ND	day of APRIL .1996 .
WHEREAS, the Principal has entered into a certain written contract,	dated the APRIL day of
	, A.D. 1996 , with the Obligee for
Sub Surface Springs of C	Cambridge Section 6
NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUC loss or damage directly arising by reason of the failure of the Principal otherwise to remain in full force and effect.	CH, That, if the Principal shall indemnify the Obligee against any and all all to faithfully perform said contract, then this obligation shall be void;
This bond is executed and accepted upon the following express cor	nditions precedent:
 That the Obligee shall faithfully and punctually perform all the 	e terms and conditions of said contract to be performed by the Obligee.
That if the Principal shall abandon said contract or be lawfully Surety shall have the right at its option to complete said contract or to s	ly compelled by reason of a default to coase operations the result to the
	addressed and mailed to it at its Executive Office, of any brough of acid
4. That the Surety shall not be liable for any provisions of the co	ontract or specifications respecting guarantees of efficiency or wearing of furnish any other bond covering such provisions of the contract or
5. All suits at law or proceedings in equity to recover on this borcontract, and in any event within twelve months from the date fixed in s	and must be instituted within twieve months after the completion of said said contract for its completion.
	THE MARINA LIMITED PARTNERSHIP
WITNESS	PRINCIPAL By ALLEN E. ROSENBERG TIME (Seal) FRONTIER INSURANCE COMPANY
WITNESS <u>Jamblyn</u> A. Fisher FILE D	By STAN RIEGEL Attorney-in-fact



KNOW ALL MEN BY THESE PRESENTS:		
ThatTHE MARINA LIMITED PARTNERSHIP		<u> </u>
(hereinafter called Principal), as Principal, and the FRONTIER INSURAN	CE COMPANY, a corporation	of the State of New York, with its Executive
Office in Rock Hill, New York, (hereinafter called Surety), as Surety, are HAMILTON COUNTY BOARD OF COMMISSIONERS	held and firmly bound unto	ter called Obligee), in the full and just sum
of Seven Thousand eight hundred twenty seven		
To the payment of which sum, well and truly to be made, the Principa administrators, successors and assigns, jointly and severally, firmly by	and Surety bind themselve these presents.	s, their and each of their heirs, executors,
Signed, sealed and dated this 2ND	day of APRI	
WHEREAS, the Principal has entered into a certain written contract,	dated the APRIL	day of
		, A.D. 1996 , with the Obligee for
Erosion Control Springs of C	ambridge Section 6	
NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUloss or damage directly arising by reason of the failure of the Princip otherwise to remain in full force and effect.	CH, That, if the Principal shall al to faithfully perform said o	indemnify the Obligee against any and all ontract, then this obligation shall be void;
This bond is executed and accepted upon the following express con	nditions precedent	
 That the Obligee shall faithfully and punctually perform all the 	terms and conditions of sai	d contract to be performed by the Obligee.
That if the Principal shall abandon said contract or be lawfull Surety shall have the right at its option to complete said contract or to	y compelled by reason of a c sublet the completion thereo	lefault to cease operations thereunder, the f.
3. That the Obligee shall notify the Surety by registered letter, a contract within a reasonable time after such breach shall have come $\mathfrak t$	ddressed and mailed to it at to the oblig	its Executive Office, of any breach of said
 That the Surety shall not be liable for any provisions of the co qualities, or for maintenance or repairs, nor is the Surety obligated to specifications. 	ntract or specifications resp	ecting guarantees of efficiency or wearing
5. All suits at law or proceedings in equity to recover on this be contract, and in any event within twelve months from the date fixed in	nd must be instituted within said contract for its completi	wleve months after the completion of said on.
	THE MARINA LIMITE	D PARTNERSHIP RINCIPAL
WITNESS	By ALLEN E. ROSENB FRONTIER IN	ERG) (Seal) ERG (Seal) SURANCE COMPANY
WITNESS Jamblyn K. Fisher	By STAN RIEGEL	Attorney-in-fact
FILED		

CERTIFICATE OF COMPLETION AND COMPLIANCE

TO: HAMILTON COUNTY SURVEYOR

RE: The Springs of Cambridge, Section 6

- I hereby certify that:
- 1.) I am a Registered Land Surveyor in the State of Indiana,
- 2.) I am familiar with the plans and specifications for the above referenced subdivision,
- 3.) I have personally observed and supervised the completion of the Drainage Facilities for the above referenced subdivision, and
- 4.) To the best of my knowledge, information and belief, the Drainage Facilities within the subdivision has been installed and completed in conformity with all plans and specifications.

Signature: Touch a. Shan	Date: 9/8/97
Type or Printed Name:Joseph A. Sharp	
Business Address: 7172 Graham Road, Indianapoli	s, IN 46250
Telephone: 317-842-6777	
<u> </u>	
1	NDIANA REGISTERED NUMBER
_	15179

P. 02/03

FAX: 776-4629

CERTIFICATE OF COMPLETION AND COMPLIANCE

TO: HAMILTON COUNTY SURVEYOR

RE: The Springs of Cambridge, Section 6A

- I hereby certify that:
- 1.) I am a Registered Land Surveyor in the State of Indiana,
- 2.) I am familiar with the plans and specifications for the above referenced subdivision,
- 3.) I have personally observed and supervised the completion of the Drainage Facilities for the above referenced subdivision, and
- 4.) To the best of my knowledge, information and belief, the Drainage Facilities within the subdivision has been installed and completed in conformity with all plans and specifications.

Signature: Dept Q. Sharp Date: 9/8/97 Type or Printed Name: Joseph A. Sharp	•
Business Address: 7172 Graham Road, Indianapolis, IN 46250	_
Telephone: 317-842-6777	-
INDIANA REGISTERED NUMBER	





Kenton C. Ward, Surveyor

Phone (317) 776-8495

Fax (317) 776-9628

Suite 146
One Hamilton County Square
Noblesville, Indiana 46060-2230

To: Hamilton County Drainage Board

September 25, 1997

Re: Springs of Cambridge Drain: Sec. 6 & 6A

Attached are as-builts, certificate of completion & compliance, and other information for Springs of Cambridge 6 & 6A. An inspection of the drainage facilities for this section has been made and the facilities were found to be complete and acceptable.

During construction, changes were made to the drain which will alter the plans submitted with my report for this drain dated April 18, 1996. The changes are as follows:

12"RCP 367 feet 15"RCP 181 feet 18"RCP 429 feet 6"SSD 4.474 feet

The length of the drain due to the changes described above is now 5,451 feet.

The non-enforcement was approved by the Board at its meeting on June 10, 1996 and recorded under instrument #9709733316.

The bond or letter of credit from Frontier Insurance Company, number 77780 for storm sewers, 77781 for subsurface, 77782 for erosion control and 77783 for monumentation; in the amount of \$37,790.00, \$27,000.00, \$7,827.00, and \$3,000.00; was released September 8, 1997.

I recommend the Board approve the drains construction as complete and acceptable.

Sincerely,

Kenton C. ward,

Handilton County Surveyor

KCW/slm

BUNSTBURTUN PLANS रित्र के विराधितिक विराधिति विराधितिक विराधितिक विराधित विराधितिक विराधितिक विराधितिक विराधितिक विराधितिक विराधितिक

SITE WORK GENERAL NOTES AND SPECIFICATIONS

NOTICES AND PERMITS

ARE SHOWN FOR REFERENCE ONLY. DEVELOPER/BUILDER/INDIVIDUAL LOT OWNER TO REFER TO NATIONAL FLOOD HAZARD INSURANCE MAP (F.E.M.A.) TO DETERMINE FLOOD HAZARD POTENTIAL PRIOR TO INDIVIDUAL LOT/PROJECT CONSTRUCTION.

THAT ALL PERMITS AND APPROVALS ARE OBTAINED FROM THE RESPECTIVE CITY, COUNTY AND STATE AGENCIES PRIOR TO STARTING CONSTRUCTION.

C. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES IN THE MOINITY OF THE CONSTRUCTION AREA PRIOR TO STARTING CONSTRUCTION.

D. IT SHALL BE THE CONTRACTORS RESPONSIBILITY FOR NOTIFICATION AND COORDINATION OF ALL CONSTRUCTION WITH RESPECTIVE UTILITY COMPANIES.

E. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER AND CONTRACTOR TO MAINTAIN QUALITY CONTROL THROUGHOUT THE PROJECT: FAILURE TO DO SO MAY RESULT IN REMOVAL AND REPLACEMENT OF THE DEFECTIVE WORK. IT IS RECOMMENDED THAT THE DEVELOPER HAVE A QUALIFIED INSPECTOR ON THE JOB SITE AT ALL TIMES DURING CONSTRUCTION.

F. IT IS ESSENTIAL THAT THE WORK TO BE DONE IN CONJUNCTION WITH THIS PROJECT SHALL BE INSTALLED ACCORDING TO THESE SPECIFICATIONS. THE ENGINEER WILL BE REQUIRED TO CERTIFY TO CERTAIN PORTIONS OF THIS PROJECT UPON COMPLETION. THEREFORE, IT IS NECESSARY TO OBTAIN APPROVAL AND ACCEPTANCE BY THE CITY THAT CONSTRUCTION WAS DONE IN COMPLIANCE WITH THESE PLANS AND SPECIFICATIONS.

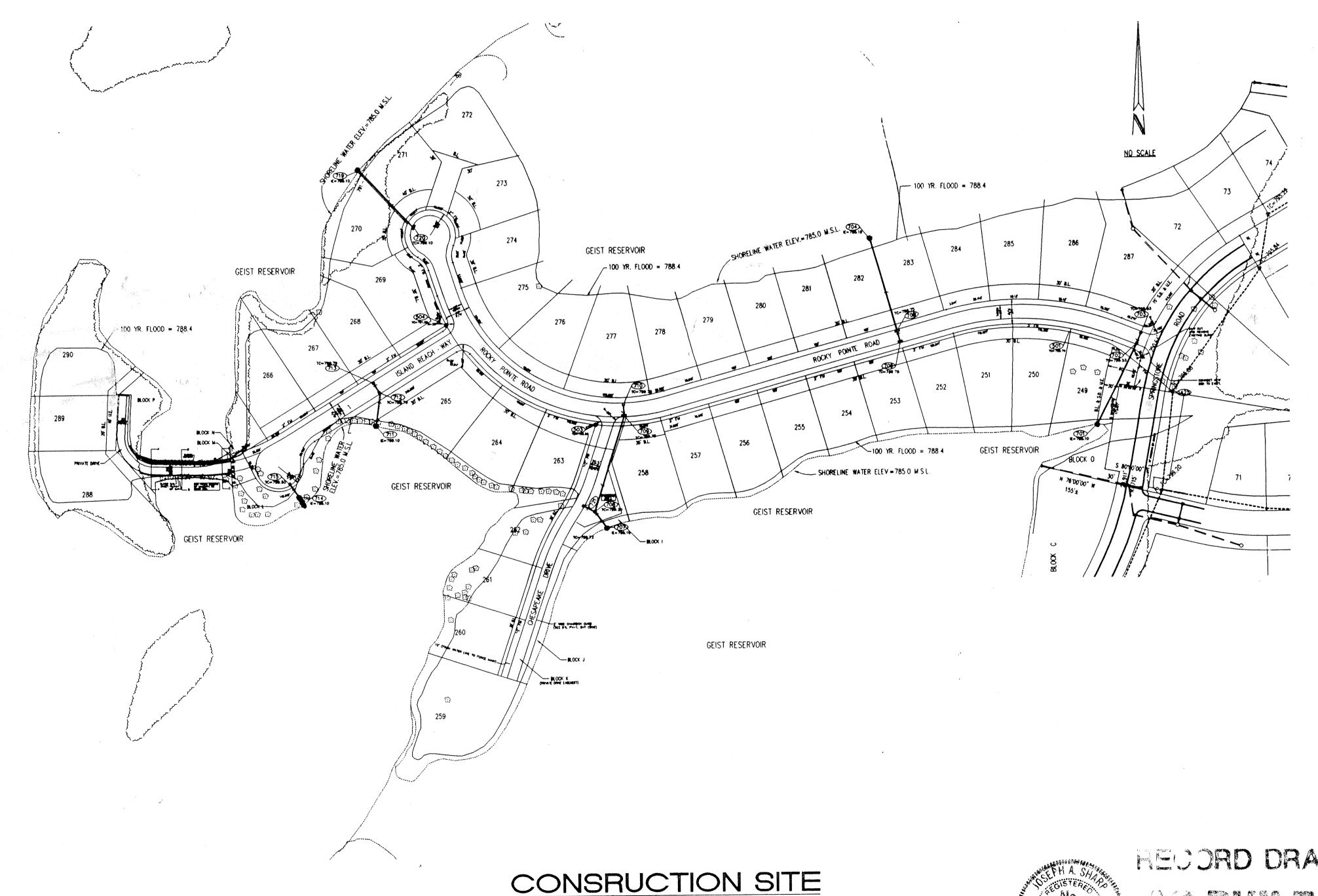
G. ALL QUANTITIES GIVEN ON THE PRINTS, VERBALLY OR IN THE SCOPE OF WORK SECTION ARE ESTIMATES AND SHALL BE CONFIRMED BY THE BIDDING CONTRACTOR.

H. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS FOR EXCAVATIONS; FINAL RULE 29 CFR PART 1926, SUBPART "P" APPLIES TO ALL EXCAVATIONS EXCEEDING FIVE (5) FEET IN DEPTH.

I. IN ADDITION, EXCAVATIONS EXCEEDING TWENTY (20) FEET IN DEPTH REQUIRE THE DESIGN OF A TRENCH SAFETY SYSTEM BY A REGISTERED PROFESSIONAL ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH THE ABOVE STATED REQUIREMENTS.

No.

CERTIFIED BY:



RECORD DRAWING

SET REVISIONS

PAUL L CRIPE TEAM 317-842-6777

INDEX

EROSION CONTROL DETAILS & SPECIFICATIONS

INTERSECTION & CUL-DE-SAC DETAILS

FORCE MAIN PLAN & PROFILE

FORCE MAIN PLAN & PROFILE

FORCE MAIN PLAN & PROFILE

STORM SEWER PLAN & PROFILE

STORM SEWER PLAN & PROFILE

HAMILTON COUNTY STD. DETAILS

BENCHMARKS

IN MARION COUNTY . GEIST RESERVOIR, 450' S.E. FROM THE N.W. END OF DAM, 18' S.W.

IND. FLOOD CONTROL & WATER RESOURSES COMM. BRONZE BENCH MARK TABLET, STAMPED

A STANDARD INDIANA FLOOD CONTROL & WATER RESOURSES COMMISSION BRONZE TABLET

ELEVATION=793.16

845-0270

877-5513

AMERITECH

776-9627

767-9328

776-8495

1-800-382-5544

CALL TOLL FREE 1-800-428-5200

FOR CALLS OUTSIDE OF INDIANA

DAVID CLEVELAND

JIM SCHELLENBERGER

TOM SCHELLENBERGER

TERRY MILLER

fax-841-4798

EXT. 561

EXT. 673

EXT. 634

800-521-2232

845-0766

877-4198

776-5330

252-5000 776-9628

263-6448

776-9814 773-5439

SET IN THE TOP OF THE SOUTHWEST BRIDGE SEAT OF FLORIDA ROAD OVER FALL CREEK

CONTACT PERSON FOR

ALLEN ROSENBERG

INDIANA GAS CO., INC.

GENE HEIWIG

PSI ENERGY

DEPT OF PUBLIC WORKS DRAINAGE BOARD

SET A T.B.M. • TOP OF 5\8" REBAR • N1706262.265, E252831.513

OF A SEARCH LIGHT, 14' ABOVE THE CEMENT SPILLWAY, 11.5' N.E. FROM STEPS, A STD.

P.I.C. STANDARD DETAILS STANDARD SPECIFICATIONS

STANDARD SPECIFICATIONS

BM MAR 91

"MAR 91 1956".

DEVELOPER

POWER

GAS CO

TELEPHONE

WATER CO

CABLE TV

DON'T

BLIND

HIGHWAY DEPT

co surveyor

DIG (

PROJECT MGR

PROJECT ENGR

TECH SERVICES

CAD TECH.

PROJECT SURVEYOR

PROJECT LAND PLANNER

FORCE MAIN DETAILS

DESCRIPTION

COVER SHEET

SITE DEVELOPMENT PLAN SITE DEVELOPMENT PLAN EROSION CONTROL PLAN EROSION CONTROL PLAN

STREET PLAN & PROFILE STREET PLAN & PROFILE STREET PLAN & PROFILE TYPICAL PAVEMENT SECTIONS TRAFFIC CONTROL PLAN

SHEET: FILE NUMBER DWG, TYPE JOB NUMBER 81100-24000

NO SCALE

15179 STATE OF

PAUL I. CRIPE, INC.

 CIVIL ENGINEERING • LAND SURVEYING ARCHITECTURE

TECH, SERVICES CK. Thom L Schellertoge DEVELOPED BY MARINA LIMITED PARTNERSHIP 11691 FALL CREEK ROAD

845-0270 PHONE NO .:

7172 GRAHAM ROAD INDIANAPOLIS, INDIANA 46250 (317) 842-6777

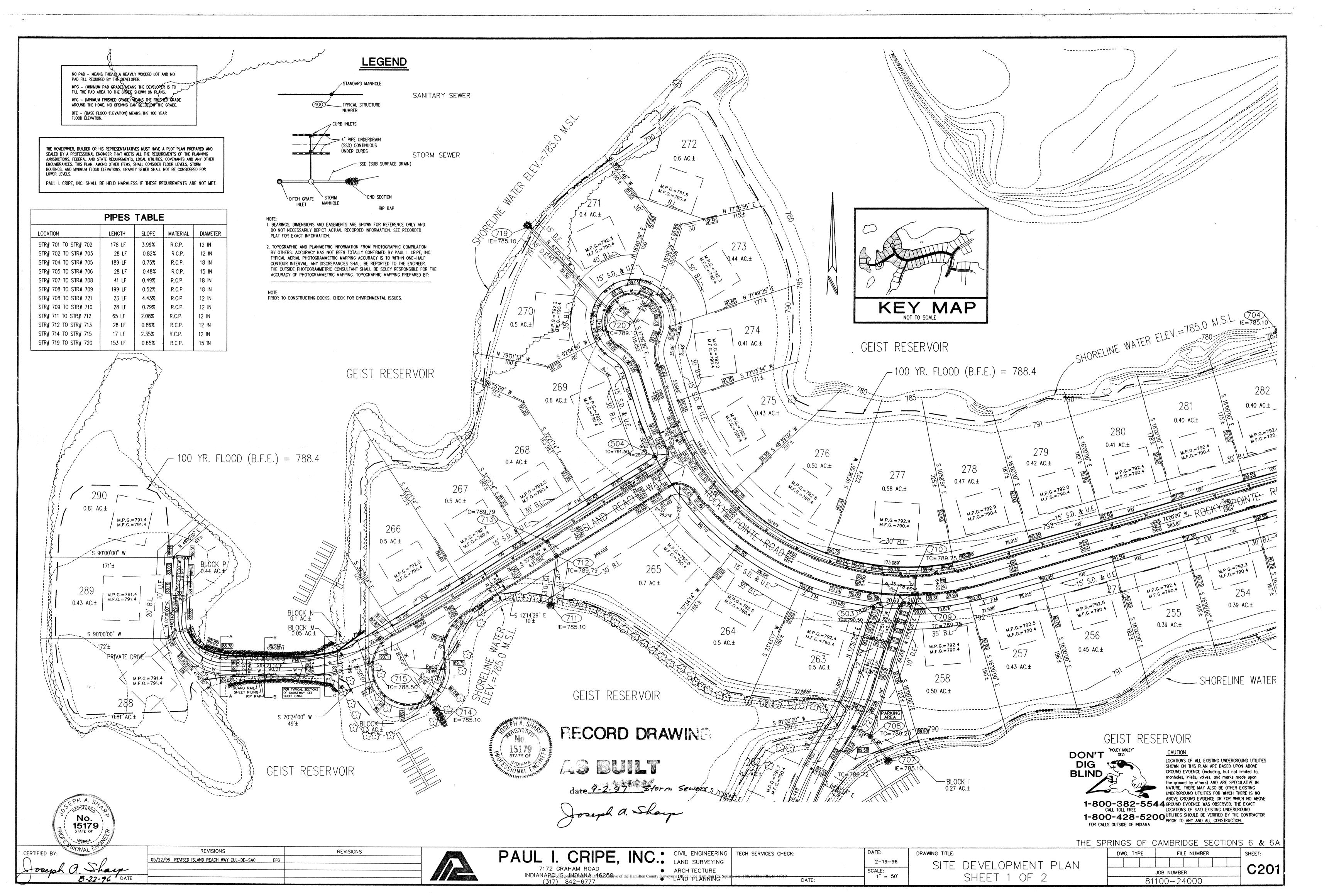
• LAND PLANNING

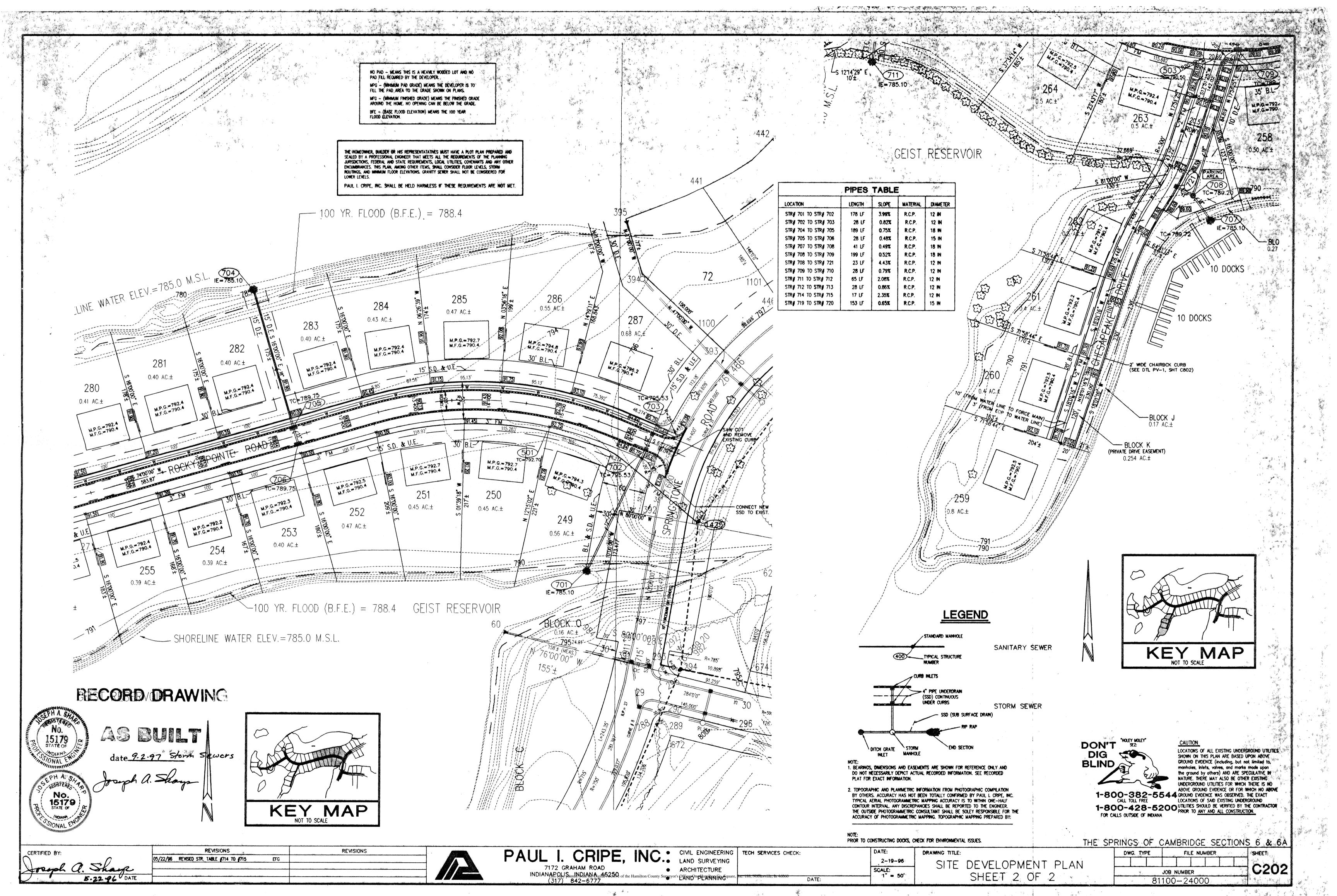
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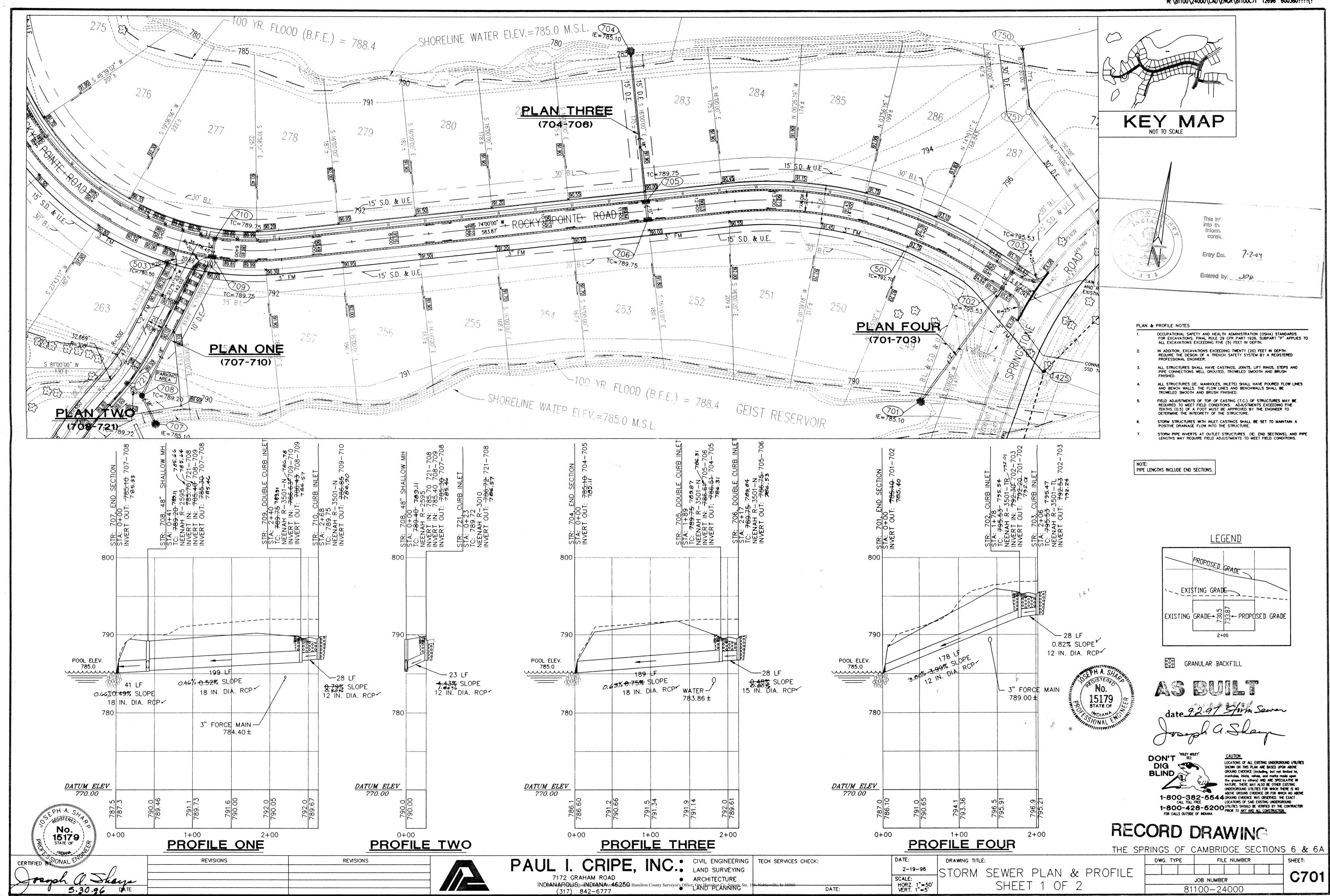
INDIANAPOLIS, INDIANA 46256

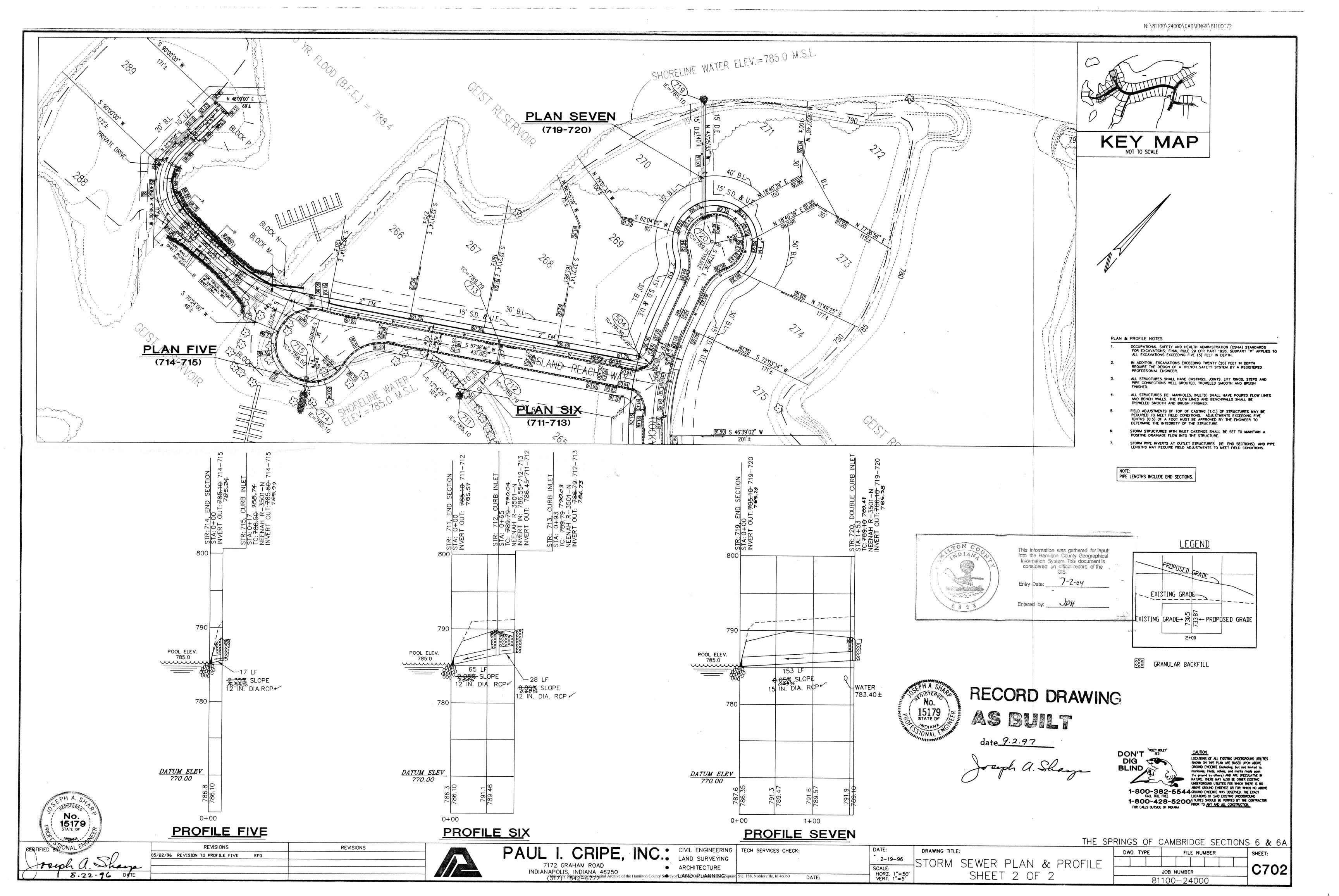
845-0766 FAX NO.:

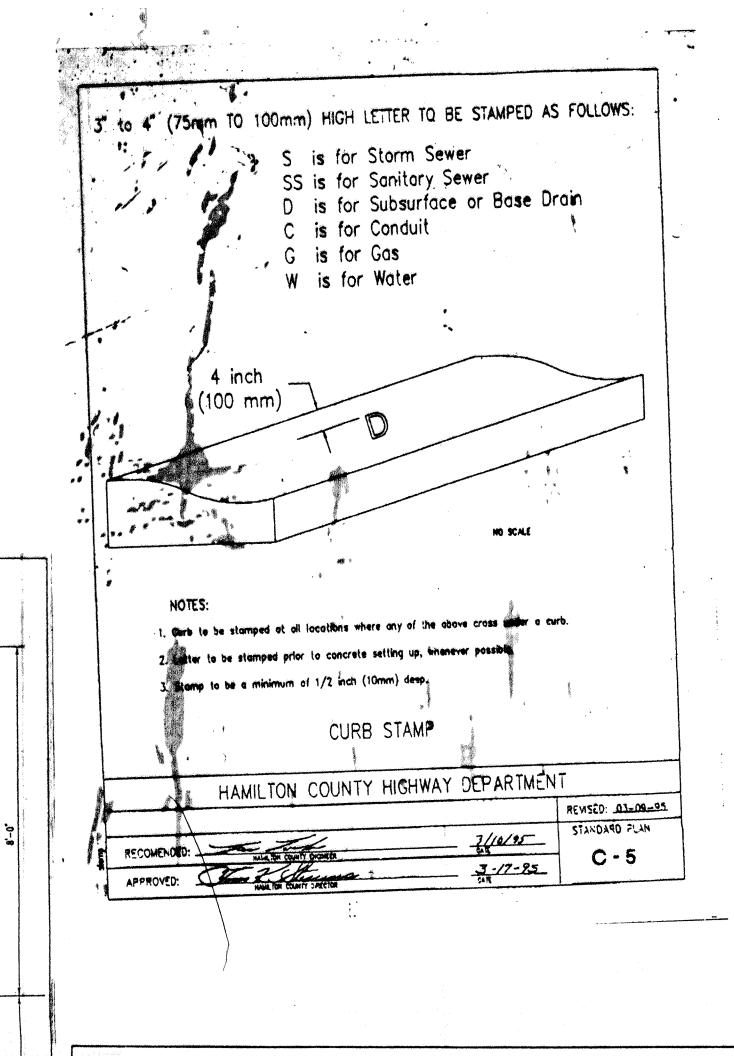
2-19-96

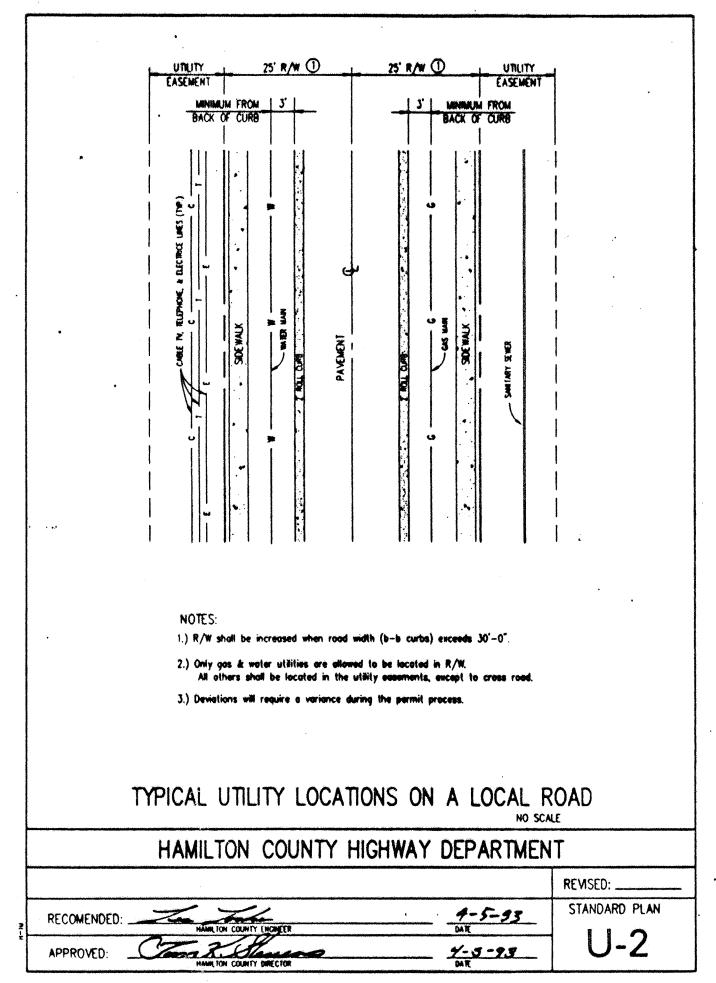


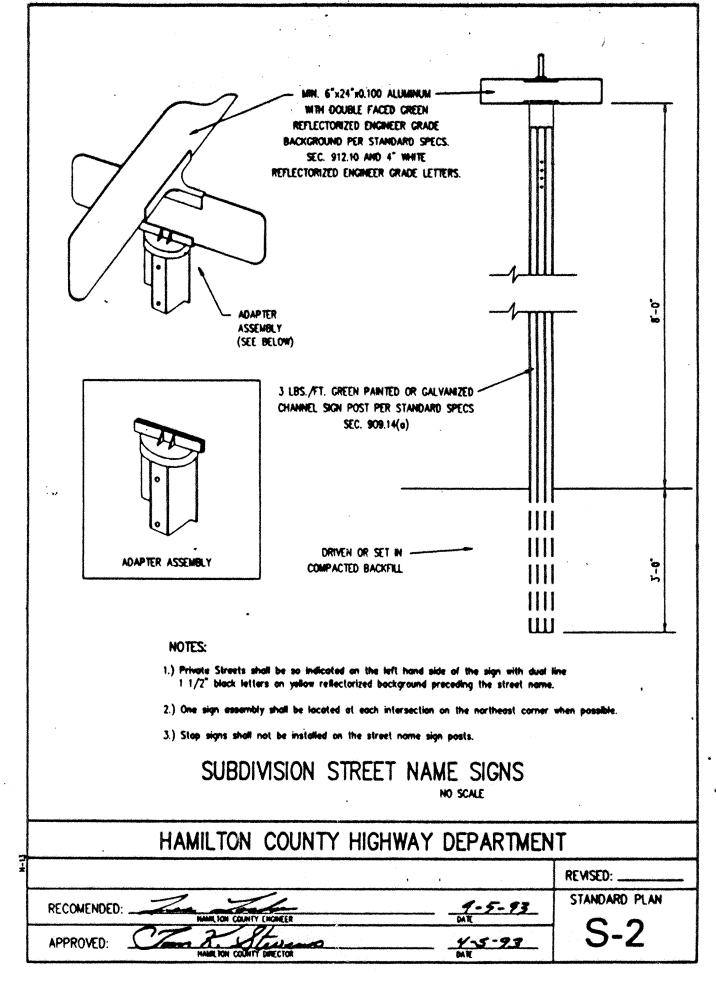


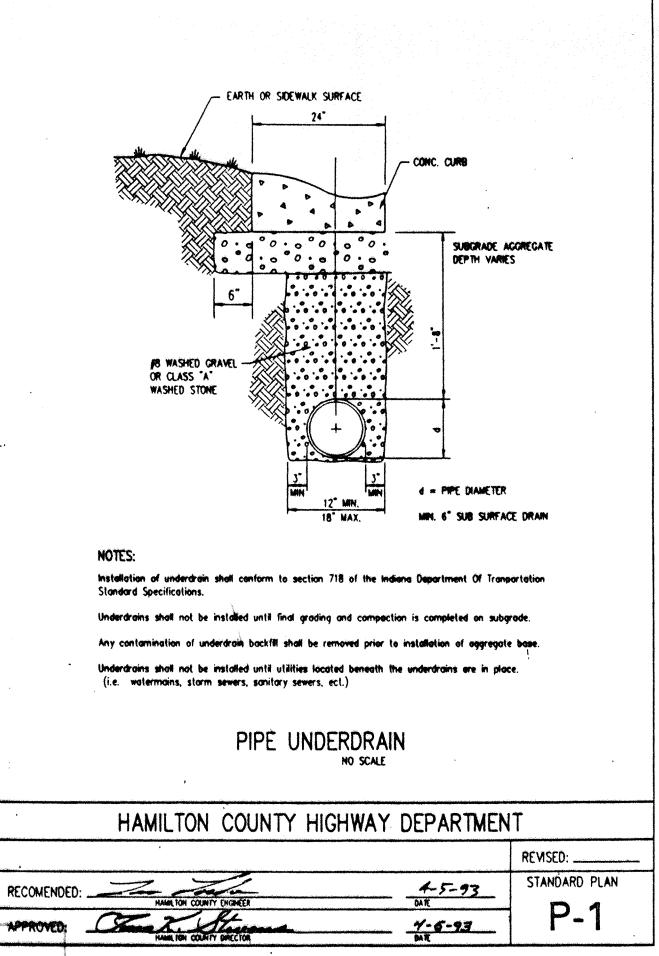


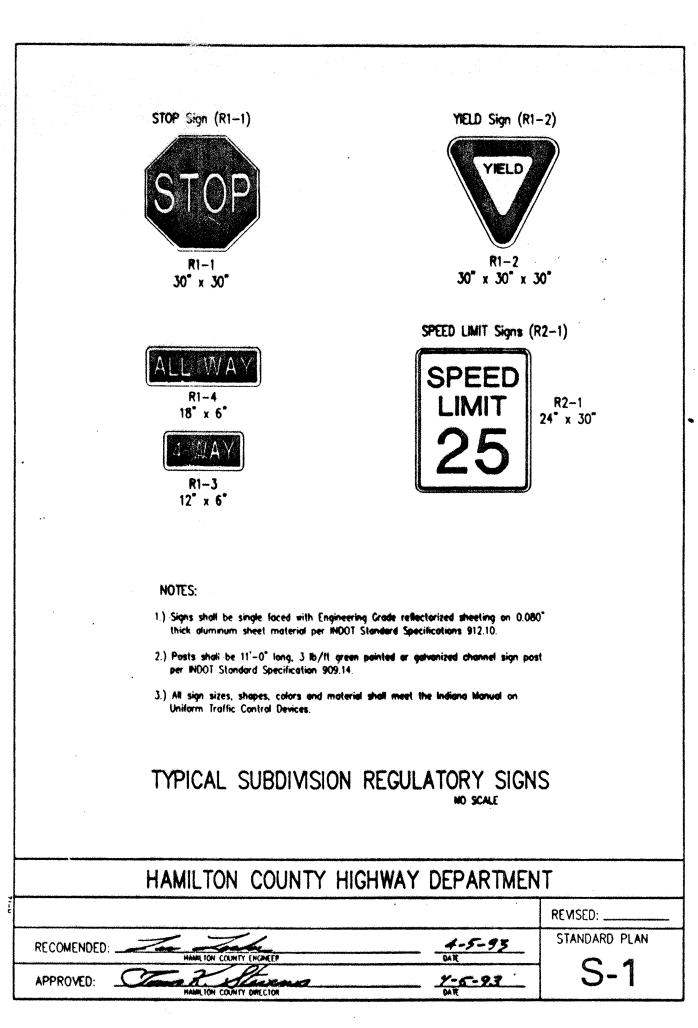


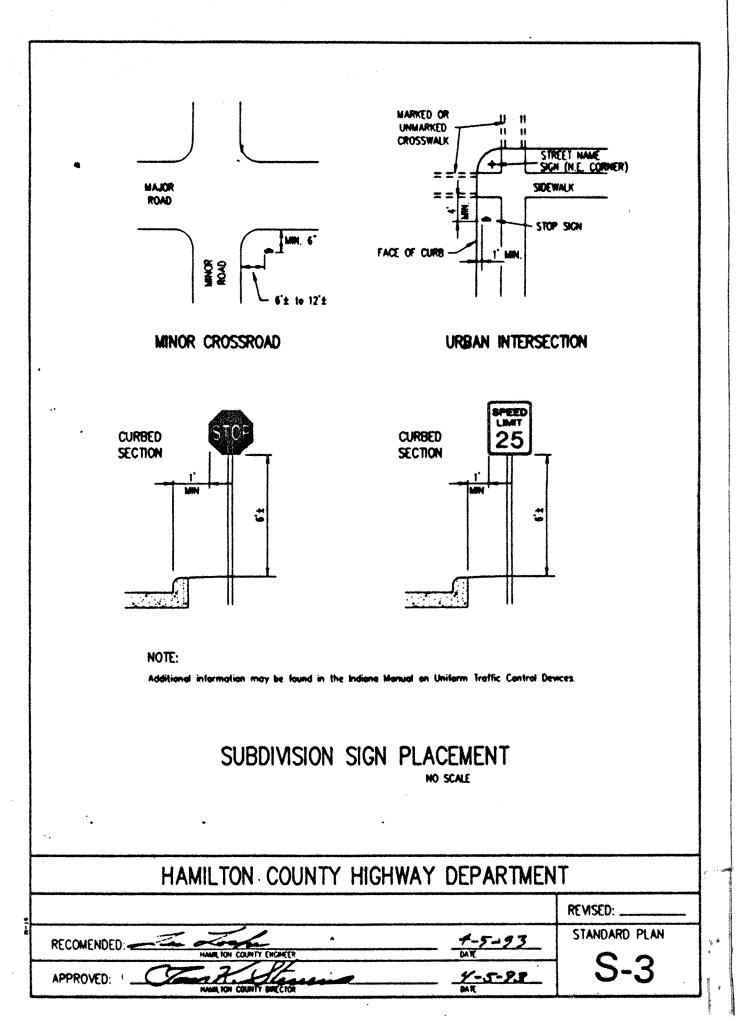














3 LBS./FT. GREEN PAINTED OR GALVANIZED CHANNEL SIGN POST PER STANGARD SPECS -SEC. 909.14(a)

> ORIVEN OR SET IN -COMPACTED BACKELL

1. Nine (9) red deflectors are to be mounted symmetrically on an 18-inch diamond red panel.

2. Three (3) End-of-Road markers are to be placed at each location. Markers are to be set evenly across the width of the road.

END OF ROAD MARKERS

HAMILTON COUNTY HIGHWAY DEPARTMENT

REVISED: 03-09-95

STANDARD PLAN

REVISIONS

3/10/95

3-17-95 DATE

REVISIONS

7172 GRAHAM ROAD INDIANAPOLIS, INDIANA 46250

This copy (1317) on 1842 to 6777/7e of the Hamil

• LAND SURVEYING ARCHITECTURE

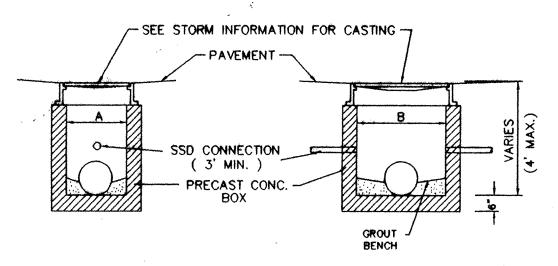
TECH SERVICES CHECK: SCALE: DRAWING TITLE: HAMILTON COUNTY THE SPRINGS OF CAMBRIDGE SECTIONS 6 & 64 DWG. TYPE FILE NUMBER **C801** JOB NUMBER 81100-24000

LAND PLANNING
Office: One Hamilton Co. Square Sta

DATE: 2-17-96

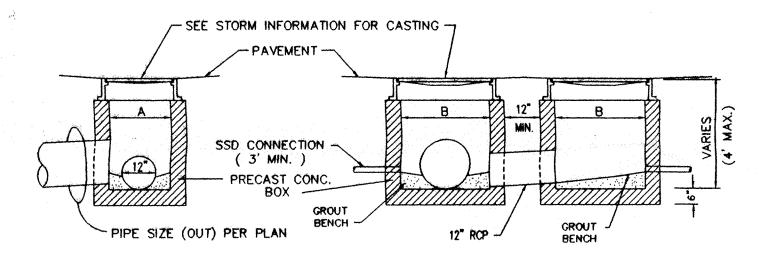
STANDARD DETAILS

EJIW	NEENAH	TYPE	USE	A	B
1022-1 HD	R-1772-A	MANHOLE	GRADED AREAS	24"	24"
1022-3 HD	R-1772-C	MANHOLE	TRAFFIC AREAS	24*	24"
7490-M1	R-3501-N	ROLL CURB	LOW POINTS	24"	24"
7495-LH-RH	R-3501-TL-TR	ROLL CURB	FLOW LEFT OR RIGHT	25"	27"
7010	R-3040	CURB INLET	LOW POINTS	30"	30"
6489	R-4342	DITCH GRATE	SWALES	23"	23"

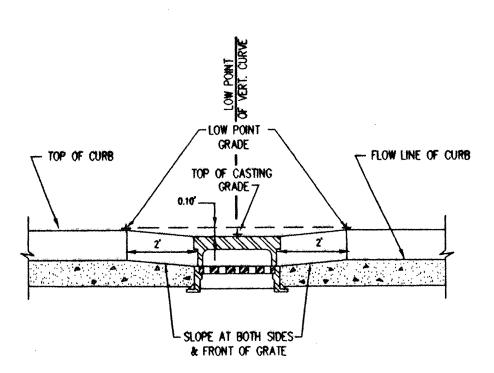


CTO 7	PRECAST	SHALLOW	INLET
31235	NO SCALE		

6489	R-4342	DITCH GRATE	SWALES	23*	23"
7495-LH-RH	R-3501-TL-TR	ROLL CURB	FLOW LEFT OR RIGHT	25*	27"
7490-M1	R-3501-N	ROLL CURB	LOW POINTS	24"	24"
1022-3 HD	R-1772-C	MANHOLE	TRAFFIC AREAS	24"	24"
1022-1 HD	R-1772-A	MANHOLE	GRADED AREAS	24"	24"
EJIW	NEENAH	TYPE	USE	Α	В



DOUBLE SHALLOW INLET



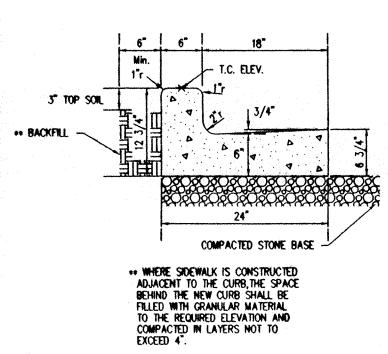
CURB INLET SETTING DETAIL NO SCALE

REVISIONS

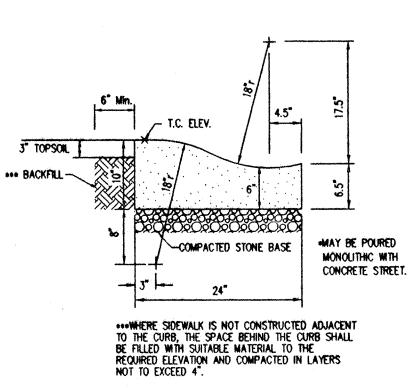
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-1) <u> </u>	(p)	
TOPSOIL		
PHONE ROLL		

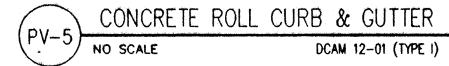
EJW	NEENAH	TYPE	USE	A
1022-1 HD	R-1772-A	MANHOLE	GRADED AREAS	24"#
1022-3 HD	R-1772-C	MANHOLE	TRAFFIC AREAS	24"#
7490-M1	R-3501-N	ROLL CURB	LOW POINTS	24" X 24"
7495-LH-RH	R-3501-TL-TR	ROLL CURB	FLOW LEFT OR RIGHT	25" X 27"
6489	R-4342	DITCH GRATE	SWALES	24*#
****	R-3405	GRATE	TRAFFIC AREAS	25" X 25"
***	R-2560-C2	BEEHIVE	SWALES	24*#
ENSION REFERS THUM PIPE SIZE OR LESS ANGLE, Y BE MORE D " 48" '" 48" '" 48"	A			PRECAST F
8° 60° 8° 72° 96° 8° 8° 8° 8° 8° 8° 8° 8° 8° 8° 8° 8° 8°	9	STEPS REQUIRED HERE DEPTH EXCEE 3'. USE NEENAH R-1981-1 OR EQUI		
ECAST OR N	IONOLITHIC BOTT	гом	GROUT	
		\	- CONCRETE THICKNES 6"- UP TO 8' DEPT 8"- UP TO 12' DEP 12"- OVER 12' DEP	TH TH

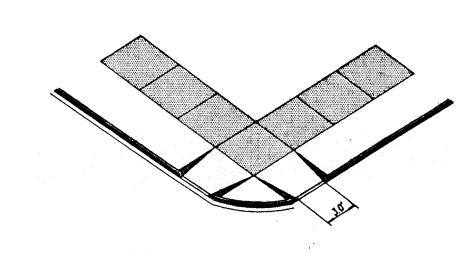




CHAIRBACK CURB & GUTTER DCAM 12-01 (TYPE II) NO SCALE

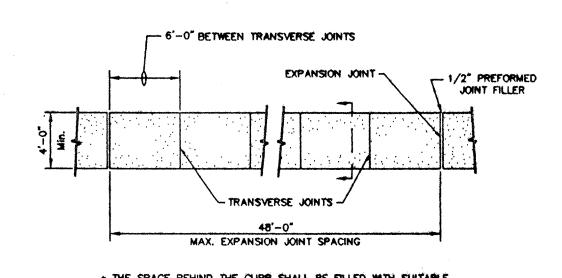






1. CURB RAMPS SLOPE SHALL BE 1:12 2. FLARED SIDE SLOPE SHALL BE 1:10 3. CURB CUTS AND RAMPS ARE REQUIRED @ ALL ROADWAY INTERSECTIONS. 4. CURB INLET GRATES MAY NEED TO BE OFFSET TO PERMIT EASY ACCESS TO RAMPS, CONTACT ENGINEER OF ANY RELOCATIONS REQUIRED.

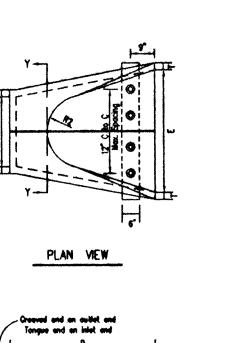
A.D.A. CURB RAMP DETAIL (PV31 NO SCALE

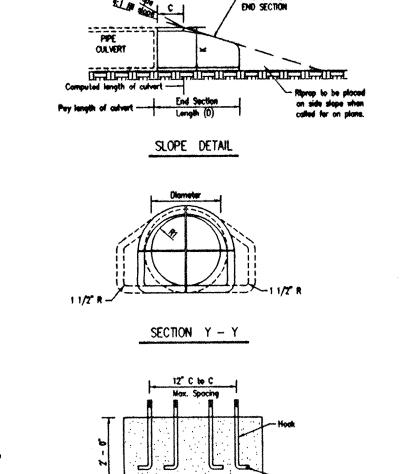


* THE SPACE BEHIND THE CURB SHALL BE FILLED WITH SUITABLE MATERIAL TO THE REQUIRED ELEVATION AND COMPACTED IN LAYERS NOT TO EXCEED 6" IN DEPTH. SUBGRADE UNDER ALL CURB, SIDEWALKS, AND DRIVES SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 207.02 OF THE STD. SPEC'S. SIDEWALKS CONSTRUCTED ACROSS AND IN CONJUNCTION WITH RESIDENTIAL DRIVEWAYS SHALL BE AT LEAST 6" THICK.

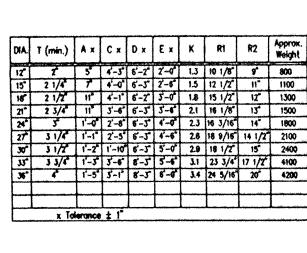
TYPICAL SIDEWALK DETAIL NO SCALE

DATE:





LONGITUDINAL SECTION



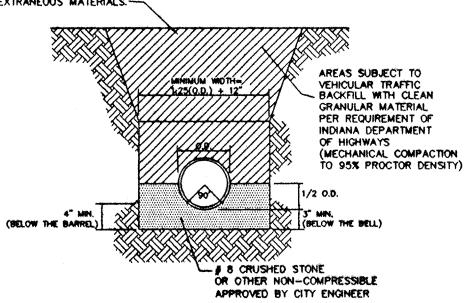
E + 2 T

SECTION A - A

PRECAST CONCRETE END SECTION

NOTE: INSPECT ALL SEWERS AS TO ELEVATION, GRADIENT, ALIGNMENT & JOINT BY INSPECTING ENGINEER PRIOR TO BACKFILL OVER PIPE

AREAS NOT SUBJECT TO VEHICULAR TRAFFIC MAY BE BACKFILLED WITH CLEAN FILL MATERIAL, FREE OF ANY ROCKS LARGER THAN 6" FROZEN SOIL, WOOD OR OTHER EXTRANEOUS MATERIALS.



RIGID PIPE BEDDING DETAIL (STORM) CONCRETE PIPE

No.

REVISIONS

CRIPE, INC. CIVIL ENGINEERING TECH SERVICES CHECK: 7172 GRAHAM ROAD INDIANAPOLIS froind MANA A 46250 e Hamilton County Surveyor's Office: One Hamilton Co. Square. S (317) 842-6777

• ARCHITECTURE

DRAWING TITLE: 1-19-96 SCALE: NONE

PIC STANDARD DETAILS

THE SPRINGS OF CAMBRIDGE SECTIONS 6 & 6A DWG. TYPE FILE NUMBER SHEET:

JOB NUMBER 81100-24000

Where area is to be seeded or landscaped, top 12 inches of SECTION 62510 DESTRUCT TOTAL BECTION 02110 H. Musevetien for structures shall be as follows: 1. In general, the items of work to be performed under backfill to be topooil. STREET AND PARKING AREAS THE PERSON SITE CLEARING this section shall include: 1. Conform to elevations and dimensions shown within a 3.05 COMPACTIME belerance of plus or minus 0.10 foot, and extending a a. Fill compaction sufficient distance from feetings and foundations to PART 1 b. Backfilling, rough and finish grading of entire A. Fill and Backfill: Compact to 93% Modified Proctor permit placing and removal of concrete formwork. maximum dry density (ASTM D-1557) maintaining indicated or installation of services, other construction, and for 1.01 SPECIAL REQUIREMENTS required elevations. Do not flood materials with water. c. Topseil replacement as indicated on the drawings. d. Subgrade preparation and grading for streets, 2. In essewating for feetings and foundations, take care Applicable provisions of Division 1 shall govern all Work Drainage Fill: Thoroughly compact to 93% Modified Proctor A. Bunelish designated structures building pads, parking lobs, walks, footings, not to disturb bottom of emcavation. Excavate by hand specified herein and are made a part of this Section. foundations, pad and piers, curbs, floor slabs. maximum dry density if materials are suitable for to final grade just before concrete reinforcement is A. Clearing and grubbing shall consist of cutting, removal B. Remove materials from site. e. General out and fill. compaction. If materials are not suitable, consolidate by placed. Trim bottoms to required lines and grades to and satisfactory disposal of all trees, down timber, hand tamping. leave solid base to receive other work. brush, projecting roots, stumps, rubbish, boulders, broken foundations and becoment floor slabs as required. MATERIAL STORAGE 3. Pooting excevation shall extend to original Provide all materials, labor, equipment, and incidentals concrete, fencing (as designated), and other material on undisturbed soil, below the level of any man-deposited Lawns: Compact to 85% Modified Proctor maximum dry to install all concrete and bituminous paving and related D. Remove underground tanks and piring. Stockpile earth meterials, drainage fill, and other density. Do not flood materials with water. fill, and below the depth of frost penetration. similar meterials incidental to earthwork in manners that items necessary to complete the work indicated on drawings Carry foundation emoavation to below the level of any B. The Contractor shall remove all topsoil in the areas to be E. Disconnect, cap, and remove and identify utilities, i.e. will prevent intermixing of such materials and intrusion and described in the specifications, including but not material which may have been disturbed during the 3.06 PROOFBOLL occupied by roads, parking areas, walks buildings and gas, electric, telephone, sanitary, water, cable T.V., of trash, debris, and organic materials. Slope construction of existing, or previously existing, designated future building fill areas. Topsoil shall be stockpiling materials to provide natural drainage from top structures to undisturbed soil. A. After stripping the site, proofroll the building, parking, All streets, parking areas in contract limits removed to a depth of six (6) inches or deeper, if pad, street and slab-on-grade areas with appropriate necessary, to remove vegetative matter where required. F. Remove other surface debris. I. Cut surface under pavements to comply with cross-sections, equipment to determine the location of loose or soft 1.05 PROTECTION Curbs and gutters See Soils Report for approximate topsoil thickness. elevations and grades as shown. areas. Loose or soft areas which are detected in the A. Protect trees, shrubs, lawns, and other features remaining J. Excevation for trenches shall be as follows: proofrolling should be stabilised by further compaction or Sidewalks (walks in front of lots to be installed by house 1.02 RELATED WORK removed and replaced with an engineered fill material. Section 01500 - Construction Facilities and Temporary as a portion of final landscaping. A. Section 02220 - Earthwork Controls: Barricades, fences, and landscape protection. 1. Dig trenches to uniform width required for particular Any engineered fill placed within the building limits Concrete slabs and exterior steps B. Protect bench marks, fences, sidewalks, paving, and curbs item to be installed, sufficiently wide to provide should be approved materials, free of lumps, frozen soil, from equipment and vehicular traffic. B. Section 01500 - Construction Pacilities and Temporary B. Section 02010 - Demolition ample working room. wood, topsoil, or other deleterious material. The Street Signs Controls: Dust control. Excavate trenches to depth indicated or required. engineered fill should be placed in lifts not exceeding 6 C. Protect above and below grade utilities which are to 1.03 REGULATORY REQUIREMENTS Carry depth of trenches for piping to establish inghes in loose thickness and compacted to a minimum of 1.03 QUALITY ASSURANCE C/ Section 01700 - Contract Closeout: Project record indicated flow lines and invert elevations. Beyond 93% maximum dry density unit weight as determined in , County of Hamilton A. Conform to documents. building perimeter, keep bottoms of trenches accordance with ASTN-D-1557 (Modified Proctor). Materials Requirements of Regulatory Agents: Obtain all required D. Protect excavations by shoring, bracing, sheet piling, Ordinances for disposal of debris. sufficiently below finish grade. on the site may be used as fill upon approval by the permits and approvals of State and local agencies having D. Section 02110 - Site Clearing: Site Clearing. underpinning, or other methods required to prevent cave-in engineer. jurisdiction of this Work as it relates to requirements or loose soil from falling into excavation. E. Section 02220 - Earthwork: Backfill materials. for acceleration and deceleration lanes, curb cuts, and PART 2 PRODUCTS Where rock is encountered, carry excavation 6 inches Depending on the time of construction some aeration of the connections to State and local roadways, if and where E. Notify Architect/Engineer of unexpected subsurface below required elevation and backfill with a 6 inch fill material may be required before it can be placed and conditions and discontinue affected work in area until applicable. Not Used layer of grushed stone or gravel prior to installation notified to resume work. A. Submit demolition and removal procedures and schedule B. Qualifications: Person or organization performing the Grade bottoms of trenches as indicated, notching under Recommend testing lab be employed to do enough testing to F. Protect bottom of excavations and soil adjacent to and bituminous paving Work shall be capable of handling, under provisions of Section 01300. be able to certify to the adequacy of all compacted areas pipe bells to provide solid bearing for entire body of storing, and controlling materials and mixes specified beneath foundations from frost. PART 3 under paving and building areas. B. Submit record documents under provisions of Section 01700 Furthermore, he shall have facilities, equipment, Backfill tranches with concrete where tranch G. Grade excavation top perimeter to prevent surface water personnel, and experience to perform the bituminous paving 3.01 CLEARING excevations page within 18 inches of column or Well PROTECTION OF ADJACENT PROPERTY run-off into excevation. footings and which are carried below bottom of such C. The Contractor shall obtain from Many Hon (County), and all other applicable governmental A. Clear areas required for access to site and execution of footings, or which pass under wall footings. Place The Contractor shall provide all silt dams, fills. concrete to level of bottom of adjacent footing. C. Paving Standards: Utilize materials, facilities, Work. Install necessary erosion control structures to authorities, necessary required permits, a copy of such temporary trenches, etc., as required to protect any Do not backfill transhes until tests and inspections protect adjoiner's prior to construction. permits to be furnished to the Owner prior to commencement adjacent property from damage due to accelerated or PART 2 PRODUCTS equipment, and methods of placement conforming to have been made and backfilling authorized by applicable requirements of the Indiana Department of Transportation Specifications (ISHSS) and of any work required herein. The Contractor shall further undesirable erosion and surface water runoff generated by All debris generated from the clearing operations shall be Architect. Use care in backfilling to avoid damage or 2.01 MATERIALS Work in his area of operations. The Contractor shall be furnish to the Owner proof that he has compiled with the removed and legally disposed of off the project site; displacement of pipe system. directly responsible for any damage so caused, and he provisions of the Municipal Code of Hemilton County of Hamilton Ordinances. unless a "Bury-Pit", approved by the Construction Manager Subbase materials shall be naturally or artificially shall indomnify any injured parties at his expense. (County), Indiana. can be utilized in an area where it shall not be beneath X. Protect all excavation bottoms against freezing when graded mixture of natural or crushed gravel, crushed D. The following standards form a part of these building areas and/or pavement areas and shall not be atmospheric temperature is less than 35 degrees F. J.08 LAYOUT specifications: stone, crushed slag, natural or crushed sand as specified 1.04 EXISTING CONDITIONS located in an area where any utility structures are located or where impoundment of surface drainage may L. Avoid long-term exposure of bearing surfaces to air and A. Conduct demolition to minimize interference with adjacent Provide the services of a licensed Surveyor to layout all 1. The American Society for Testing Materials Serial water. Concreting should fellow footing excavations and B. Drainage fill shall be washed, evenly graded mixture of new work associated with new footings and foundations and Designation: structures crushed stone, or crushed or uncrushed gravel, with 100% bearing surface inspections as rapidly as practical. to establish datum elevations to set top of footing Materials shall not be disposed of by burning unless elevations. a. C29-42: Standard Method of Test for Unit Weight B. Provide, erect, and maintain temporary barriers and passing a 1.1/2" sieve and not more than 5% passing a No. approved by the local Fire Marshall and the Construction Perform earthwork operations to establish required security devices of Aggregate Manager. All required permits are to be obtained by the elevations and dimensions within the following tolerances, TOPSOIL PLACEMENT Conduct operations with minimum interference to public or except that no telerance will be permitted that would C. Subsoil: Excavated material, graded free of lumps larger b. C127-42: Standard Nethod of Test for Specific private thoroughfares. Maintain egress and access at all allow a lesser size than indicated for footings and than 6 inches, rocks larger than 3 inches and debris. Gravity and Absorption of Coarse Aggregate A. The sub-grade shall be brought to a uniform grade Topsoil shall be kept separated from suitable fill foundations or a lesser thickness than indicated for everywhere, 6 inches below finished soil surface. materials and shall not be used as fill under pavement paving, paving base ocurses and concrete floor c. D75-42T: Standard Method of Sampling Slab for Use D. Pea Gravel: Mineral aggregate graded 1/4 inch to 5/8 and building areas. D. Do not close or obstruct roadways and sidewalks without slabe-on-grade. inch; free of soil, subsoil, clay, shale, or foreign as Highway Material B. All areas to be topsoiled shall have sub-grade soil permits. loosened to a depth of 2 inch grades to remove all ridges E. Topsoil shall be stored at a location where it does not Under buildings and paving areas: ± 0.10 feet. 1.04 ENVIRONMENTAL CONDITIONS and depressions, so that it will be parallel to the R. All material as a result of the general demolition shall interfere with construction operations. 2. Other Areas: ± 0.20 feet E. Sand: Watural river or bank sand; washed, free of silt, proposed finish grade. All stones over 2 inches in any be the property of the Contractor. The Contractor's lump Do not perform bituminous Work when ambient temperature is clay, loam, friable or soluble materials, or organic dimension, sticks, rubbish and other extraneous matter, sum bid price for the demolition shall take into account F. Topsoil shall be reasonably free from subsoil debris, Excevate, replace and dispose of site soil materials below to degrees F. unless expressly permitted by the matter; graded in accordance with AMSI/ASTM C136, within shall be removed during this operation. the salvageable value of materials and said bid price determined to be unsuitable by Project Engineer or Soils Engineer to the contrary. Do not perform bituminous the following limits: Engineer if Engineer so directs. paving Work when weather conditions may prevent the proper shall reflect said savings. Place topsoil to minimum depths indicated on the planting G. Excess topsoil to be stockpiled in the areas designated on handling and finishing of bituminous mixes. Sieve Size Percent Passing plans in each respective area. Place topsoil in 6" the grading plan, or removed from the site if directed by O. Replace unsuitable soil materials with Common Fill compacted lifts and develop smooth planting surfaces. the owner or engineer. Materials specified and backfill, compact and grade the 1.05 COORDINATION PART 2 PRODUCTS Remove all vegetation, stones, roots and rubbish from replacement materials as specified herein. 10-100 topsoil and rake to even surface. Carefully spread Closely coordinate Work of this Section with related site Not Used. 5-90 topsoil to meet walks, paving, adjacent properties, and be Work. Schedule installation of bituminous paving such P. Dispose of unsuitable soil materials on site in the area 100 4-30 free of low spots. Finish grade shall be ± 1" of finish 3.02 PROTECTION that walks, curbs, parking equipment, and similar Work designated by Engineer and seed as noted. Bury pits can grade elevations shown on the grading plan. have been completed and approved prior to commencing be utilized in nonstructural fill area not restricted by PART 3 EXECUTION A. Traffic: - Conduct site clearing operations to ensure paving. Beginning of installation means acceptance of other easements to obtain suitable fill material and waste No heavy objects, except lawn rollers, shall be moved over minimum interference with roads, streets, walks, and other PART 3 EXECUTION 3.01 PREPARATION unsuitable soil and topsoil. Topsoil shall be separated existing conditions. lawn areas after the sub-grade soil has been prepared. adjacent occupied or used facilities. Do not close or and reused in all landscape areas, including upper 12 B. Utility Structures: Check for correct elevation of all A. Prevent movement or settlement of adjacent structures. obstruct streets, walks or other occupied or used inches of sever trench backfill Topsoil shall be spread evenly thereon by approved method manhole covers, valve boxes and similar structures located facilities without permission from the appropriate Provide bracing and shoring. to the required depth, and the area then rolled with a 200 within areas to be paved, and make, or have made, any A. Identify required lines, levels, contours, and datum. As pound roller. Sattling: Where settling is measurable or observable at B. Protect existing landscaping materials, appurtenances, per site construction plans. necessary adjustments in such structures. excavated areas during general project warranty period, B. Protection of Existing Improvement: Provide protections structures and paving which are not to be demolished as E. No topsoil shall be spread in a frozen or muddy condition. remove surface (pavement, lawn or other finish), add necessary to prevent damage to existing improvements specified in Section 01500. B. Identify known underground utilities. Stake and flag backfill material, compact, and replace surface treatment. indicated to remain in place. locations. Coordinate with demolition contractor. Restore appearance, quality, and condition of surface or F. Where topsoil already lies in place, the topsoil surface Proof roll shall be conducted over sub-grade before any C. Disconnect, remove, and cap designated utility lines shall be loosened by disk and harrow or grubbed to a depth finish to match adjacent work, and eliminate evidence of a. Protect improvements on adjoining properties and on base is placed. Proof roll shall be observed and approved C. Identify and flag surface and aerial utilities. within demolition areas. of 4 inches and all rocks, trees and weed roots removed restoration to greatest extent possible. Owner's property. by the Engineer and the accepting local agency. prior to fine grading. D. Wark location of disconnecting utilities. Identify FILLING b. Restore damaged improvements to their original D. Notify utility company to remove and relocate utilities. G. For topsoiled areas, the finished surface of the topsoil utilities and indicate capping locations on Project Record conditions, as acceptable to parties having See Site Construction Plan. B. Acceptance of Subgrade: The placing of the stone base Subgrade Fill: Where concrete slabs are placed on earth, shall conform to the finished grade, shall be free of constitutes that the paving contractor has accepted the all loam and organic or other undesirable material, as hollows or other inequalities, and of stones, sticks and E. Maintain and protect existing utilities remaining which condition of the subgrade and accepts full responsibility E. The Contractor shall coordinate with the gas, electric, determined by the Architect, shall be removed and replaced other extraneous matter, and shall be satisfactory to the C. Protection of Existing Trees and Vegetation: Protect for maintaining the grade elevations and contours pass through work area. with fill material as specified below. Where fill is telephone, water and cable TV utilities for disconnection Architect. existing trees and other vegetation indicated to remain indicated on the Drawings. Subgrade should be inspected of all utilities. Utility connection shall be removed to required to raise the subgrade for concrete slabs or EXCAVATION inplace, against unnecessary cutting, breaking or skinning and tested by the appropriate governmental agency prior to the property line limits. Utility relocation and removal exterior concrete platforms to the elevations indicated on Topsoil shall be fine graded by methods approved by the of roots, skinning and bruising of bark, smothering of pavement construction. shall be included in the price of the demolition bid by the Drawings or as required by the Architect, such fill A. Nature of Materials: Based on soil report, the materials trees by stockpiling construction materials within drip Architect, removing stones, lumps, etec., and the entire the Contractor. shall consist of a bank run gravel or sand brought in from areas shall be left ready for seeding, sodding or to be excavated are anticipated to be earth and other line, excess foot or vehicular traffic, or parking of Should the paving contractor refuse acceptance of the and approved source off the site. The subgrade shall be planting. The Architect shall be notified as to the exact materials that can be satisfactorily excavated with a subgrade, he shall notify the General Contractor vehicles within drip line. Provide temporary guards to 3.02 EXECUTION brought to a true and even plane. Material used for fill day that the areas will be ready for planting. protect trees and vegetation to be left standing. power shovel. Should solid, large boulders, or other immediately of the deficiencies. Should the paving shall be placed in layers not exceeding 6 inches in massive objects be encountered which cannot be so removed, contractor fail to notify the General Contractor of any A. Demolish indicated structures and appurtenances in an thickness and thoroughly compacted with a roller. Each D. Protect bench marks and existing work from damage or notify the Architect and do not proceed in the area in I. Schedule of Locations deficiencies and/or proceed in the placing of the stone layer of fill shall be moistened during compacting to a orderly and careful manner. displacement question until so instructed. base, said actions shall constitute acceptance of moisture content such that the required degree of 1. The following paragraphs identify compacted topsoil B. Cease operations and notify Architect/Engineer immediately compaction may be obtained. B. Footings and Foundation Excavation: Excavate to thicknesses for various locations. if adjacent structures appear to be endangered. Do not D. Pavements built by stage construction, that is pavements dimensions, lines, and elevations indicated on Drawings or SECTION 02220 resume operations until corrective measures have been Drainage Fill: Drainage fill shall be sand or gravel for Seeded Grass: 6 inches used to carry traffic before the full pavement structure required for Work indicated on Drawings: include all slabs at or above grade and drainage fill under slabs b. Sod: 4 inches is in place, will have each stage used by traffic EARTHWORK sufficient space to allow for forming and concrete Work c. Shrub Beds: 18 inches below grade shall be a washed "Course L" gravel. Drainage inspected by the appropriate governmental agency for and for other subsequent Work, as well as for inspecting. C. Except where noted otherwise, immediately remove fill shall be installed to produce a compacted thicknessd. Flower Beds: 12 inches distressed areas before the next stage is started. Stockpile excavated materials that are suitable for demolished material from site. as shown and shall be properly leveled to a reasonably PART 1 GENERAL backfilling on Project site. Should any part of Distressed areas will be repaired to the satisfaction of true and even surface. All drainage fill shall be 3.10 COMPLETION OF WORK excavation be erroneously cut deeper than required, extend the Engineer before an additional stage is constructed. The Contractor shall be required to demolish and remove deposited and compacted by rolling or tamping. All fill 1.01 SPECIAL REQUIREMENTS such footing excavation with 2000 psi concrete. If designated foundation walls, retaining walls, curbing, required shall be furnished and installed by the Removal: At completion of earthwork, remove machinery, PART 2 PRODUCTS lowering is required because of erroneously cut concrete slabs, paving, tanks, structures, pipes, manholes Contractor at his expense. waste material, topsoil, tools, equipment, trash, and Applicable provisions of Division 1 shall govern all Work excavations, perform Work at no extra cost. as shown on the Contract Documents, or as may be, all other debris from site. Remove excess earth stockpiled specified herein and are made a part of this Section. 2.01 PAVING MATERIALS existing basement floor slabs that are not removed shall Fill material: shall consist of earth obtained from cut C. Drainage: The Contractor shall control grading in the from site. The location of dump and length of haul shall be broken up sufficiently to permit drainage through the vicinity of the building and other structures so the areas, borrow pits or other off-site sources. Earth shall be the contractor's responsibility. General: Paving materials for hot asphalt concrete shall 1.02 RELATED WORK slab. All existing basement walls, foundations, floor be free from vegetable matter and other deleterious surface of the ground will be properly sloped to prevent conform to applicable requirements for ISHSS Section slabs, and etc., shall be removed to an elevation 2' below substances and large rocks. Fill obtained from off-site Cleaning: At completion of the earthwork and periodically Section 01400 - Quality Control: Compaction requirements water from running into the excavated areas. Any water 303,401, and 403. existing grade or proposed grade if in an area of cut. shall be of kind and quality as specified for fills and during construction if so instructed by the Owner or City, which accumulates in the excavation shall be removed of backfill. All debris generated during the demolition operation shall clean earth materials from walks, drives and parking the source shall be approved by the Architect/Engineer. B. Provide all new paving as indicated on Drawings. be removed and legally disposed of off the site unless The fill material shall be placed in layers not to exceed areas, public thoroughfares and property and structures. B. Section 02110 - Site Clearing alternate bury pit area is approved by the Construction six inches following compaction. Moisture content of fill D. Shoring and Sheeting: Such shoring and/or sheeting as may Compacted Aggregate Subbase: Shall be crushed stone or material will be such that compaction to specified density 3.11 FIELD QUALITY CONTROL gravel. Crushed gravel shall be a minimum of 35% crushed C. Section 02700 - Site Utilities be required during excavation shall be installed to is possible. All fill beneath paved areas, floor slabs protect the banks adjacent to paving, structures, and material. Chert shall be limited to a maximum of 8% of E. All septic tanks within the limits of building pad and Provide for visual inspection of bearing surfaces under and future buildings shall be compacted to at least 93% of D. Section 02930 - Seeding/Erosion Control - Sodding: Finish the total. Material shall be free from an excess of flat, parking areas shall be removed. All others shall be the modified Proctor maximum dry density (ASTM-D-1557) or provisions of Section 01400. elongated, thinly laminated, soft or dissintegrated ground cover. pumped and backfilled with sand or other granular higher if recommended by Soils Engineer. See Soil Report pieces; and shall be free from fragments coated with dirt. E. Existing Utility Lines and Structures: If existing by Atec Associates, dated April 10, 1990 for soil B. Tests and analysis of fill material will be performed in E. Section 02950 - Trees, Plants, and Ground Cover: Topsoil Compacted aggregates shall be graded as follows: utility lines and/or structures not shown or noted on the drawings are encountered during the earthwork operations, conditions and fill recommendations fill for trees, plants, and ground cover. F. Remove and properly dispose of contaminated, vermin they shall be protected from damage, supported and all SIEVE SIZE * PASSING BACKFILLING infested, fuel tanks, or dangerous materials encountered. C. Compaction testing will be performed in accrodance with SCOPE OF THE WORK necessary measures taken to prevent interruption of the ANSI/ASTM D1557. service. The Architect/Engineer shall be notified and the 1-1/2" 100 After completion of the foundations, footings, walls, 6. Do not burn or bury materials on site unless a permit is A. Work Not Included: disposition of the encountered utility will be determined. obtained from the local Fire Dept. and Construction utilities, sanitary and storm and other construction below 80-100 If tests indicate Work does not meet specified If these utility items are damaged, they shall be repaired 70-90 the elevation of the ground floor and final exterior requirements, remove Work, replace and retest at no cost Excavation, backfilling, and filling required exclusively by the Contractor at no additional expense to the Owner. 1/2* 55-80 grades and prior to backfilling, all forms shall be for Mechanical Work, Electrical Work, or both, shall be as 35-60 H. Keep work sprinkled to minimize dust. Provide hoses and removed and the excavation shall be cleaned of all trash specified in the Mechanical and Electrical Specifications Excavated material not suitable or required for the 25-50 and debris. watermain or hydrant connections for this purpose E. Frequency of Tests: 2 tests per building pad; 1 test building backfill or for site fill shall become the 12-30 each, 100 linear feet of paved drive. Contractor shall Material for interior backfill and for backfill under Backfill besements and areas excavated as a result of property of the Contractor and shall be removed from the satisfy accepting agency in test requirements if they B. The Work covered under this Section shall include all exterior concrete platforms shall be as specified above demolition. Use subsoil specified in Section 02220. exceed the number specified above. labor, materials, equipment and appliances necessary for D. Tack and Prime Coats: To assure bond between base and for subgrade fill. Exterior backfill materials shall excavating, filling, rough grading, backfilling and consist of earth with chunks not exceeding 2 inches in G. Proof-roll the exposed subgrade with a loaded tandem-axle binder courses or between binder and surface courses, grade and compact areas affected by demolition to Proof roll compacted fill surfaces under slabs-on-grade H same and site grades and contours. related items necessary to complete the work included on dump truck or similar weight vehicle to initial stripping diameter, free of track, lumber and other debris. apply complete tack and prime coating. Place binder paving. the drawings and described in the specifications. Backfill shall be placed in horizontal layers not to and/or surface course immediately after applying tack or operations. Yielding zones detected that cannot be exceed 12 inches in thickness and shall have a moisture stabilised in-place by additional rolling, and all erganic pockets and soils identifiable as old fill shall be prime coat after an appropriate drying time. materials resulting from demolition from site content such that the required degree of compaction may be resses. Leave site in clean condition. obtained. Each layer shall be compacted by hand, machine underout and replaced with clean, compacted earth fill. 1. Apply tack coat to contact surfaces of previously constructed asphalt or portland cement concrete and Proofing-rolling shall be subject to Architect's/ tampers, or by other suitable equipment to a density that Engineer's inspection. Notify Architect at least 48 hours will prevent excessive settlement or shrinkage. Exterior surfaces abutting or projecting into asphalt concrete THE SPRINGS OF CAMBRIDGE in advance of proofing-rolling activities. backfill shall be placed to the approximate elevation of pavement. Distribute at rate of 0.05 to 0.15 gallon the surrounding grade so that water will not pond or run against the building. Backfill simultaneously on each per square yard of surface. Cut-back asphalt type: SECTION 6 \$6A AASHTO N 82 (ASTH D 2027) NC-30, NC-700, NC-250. side of unsupported foundations. DATE: REVISIONS REVISIONS DRAWING TITLE: DWG. TYPE FILE NUMBER SHEET: OTAL CINOMACENNA ! IEOU SENANCES CHECK!

● LAND SURVEYING

ARCHITECTURE

This copy (347) from 842 2116 7979 e of the Hamilton County Surveyor's Office; One And to PLANIAL SE. 188, Noblesville, In 46060

7172 GRAHAM ROAD

INDIANAPOLIS, INDIANA 46250

1-29-96

SCALE:

Thomas detallation

DATE: 1-25-55

STANDARD SPECIFICATIONS

SHEET 1 OF 2

C901 JOB NUMBER 81100-24000

2. Apply prime coat over compacted base stone. Apply material to penetrate and seal, but not flood, surface. Cure and dry as long as necessary to attain penetration and evaporation of volatile. Distribute at a rate of 0.2 to 0.5 gallons per square yard. Emulsifled asphalt: AASHTO M140 (ASTM D 997) or M208 (D 2397); \$8-1, \$5-1H, CSS-1 diluted with one part water to one part emulsified asphalt.

2.02 CONCRETE MATERIALS

- Concrete: Plain concrete pavements shall be constructed in accordance with Section 501 of the Indiana Dept. of Highways Specifications. Concrete shall be ready-mixed concrete and shall be a mix of proportioned fine and coarse aggregates with Portland cement and water. Minimum cement content shall be 6 bags per cubic yard of concrete and maximum water content shall be 5.5 U.S. gallons per sack of cement, including moisture in the aggregate. Slump for normal weight concrete shall be a maximum of 4 inches and a minimum of 2 inches. The slump of machine placed concrete shall be no less than 1-1/4 inches nor more than 3 inches. Standard test ASTM C-143 shall be used to measure slump. Compressive strength of concrete at 28 days shall be 4000 psi. All exterior concrete shall have air entrainment of 5% to 8% by volume per ASTM C-260. Retempering of delivered concrete will not be allowed. Concrete shall be composed of:
- 1. Portland Cement: Conforming to ASTM C-150, Type IA or Type IIIA.
- 2. Aggregates: Conforming to ASTM C-33. Water: Shall be clear and free from injurious amounts of oils, acids, alkalies, organic materials or other deleterious substances.
- B. Welded Steel Wire Fabric: Where required for concrete reinforcement shall conform to ASTM A185.

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

2:03 SEALCOAT MATERIAL

Sealcoat shall be Jennite J-16 or approved equal

2.04 STRIPING MATERIALS

Traffic Paint, White, chlorinated rubber base, factory mixed, quick drying, non-bleeding: conforming to Fed. Spec. TT-0-115C, Type III and conforming to ISHSS

PART 3 EXECUTION

3.01 PREPARING SURFACE

- A. Grading: Do any necessary grading to that performed in accordance with Earthwork Section, to bring subgrades, after final compaction, to the required grades and sections for site improvement.
- B. Preparation of Subgrade: Remove spongy and otherwise unsuitable material and replace with stable material. No traffic will be allowed on prepared subgrade prior to
- C. Compaction of Subgrade: The first 6 inches below the subgrade shall be compacted to at least 93% of the maximum dry density as determined by the provisions of AASHTO T-99. Water shall be prevented from standing on the compacted subgrade. Clay and silty clay soil shall be compacted at a moisture content 1% to 2% above optimum moisture to reduce future volume changes.
- C. Sweep and clean the entire surface of pavement using a power sweeper and a brush prior to seal coating.

3.02 INSTALLING - GENERAL

- Place paving materials to the thicknesses and tolerances indicated on the Drawings. Thicknesses indicated are
- B. Slopes and Tolerances: Unless otherwise indicated on Drawings, place paving to the following tolerances:
- 1. Surfaces: Variation from plane shall not exceed 3/16 inch in 10 feet except where crowning or pitching is required, but in no case shall create low spots which will pond water.
- 2. Slopes: In parking areas maintain a minimum slope of 1/8 inch per foot (1/4 inch per foot preferred), see site grading plan for proposed elevations and slopes.

3.03 PLACING PAVING

- A. General: Place bituminous paving in areas as indicated on Drawings in accordance with ISHSS Sections 303 and 403. Do not roll over the unprotected edge of a spread. Perform rolling, or other approved techniques, as required, to product a defect-free surface of uniform texture with no evidence of tool or machine marks, or
- B. Compacted Aggregate Subbase: The thickness shown on the drawings is the minimum thickness of the fully compacted subbase. Compaction shall be accomplished by rolling with a smooth wheeled roller weighing 8 to 10 tons. Compact to 100% of maximum dry density in accordance with Section 304.05. Along curbs, headers and walls and at all places not accessible to the roller, the aggregate material shall be tamped with mechanical tampers or with approved hand
- Construction within Right-of-Way: All street construction within the lines of dedicated right-of-way shall be in accordance with the Specifications of the Town of Noblesville, County of Hamilton and/or State of Indiana, if within highway right of way.
- D. Tack and Prime Coats: To assure bond between base and binder courses, or between binder and surface courses, apply complete tack and prime coating.
- Binder and Surface Courses: Place binder and surface course only on solid, dry, and unfrozen subsurfaces. Spread each course concurrently, within practical limits, using Mechanical spreaders; supplement spreading with manual methods. Spread binder course and surface course to required thicknesses as set out hereinbefore.
- F. Join or abut adjacent surfaces and patch those paving surfaces which are disturbed by the construction operations neatly and accurately using methods best suited for each particular condition.

DATE

3.04 PLACING CONCRETE

CERTIFIED BY:

1.4.16

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

forms shall be free from warp, tight enough to shap and substantial enough to maintain their shap and position without springing or settling, when concrete a placed. Forms shall be clean and smooth clearly before concreting.

require as ittle rehandling as practicable. When Concrete shall be deposited so as to to be placed at an atmospheric temperature of

Fi or less, paragraph 702.10 of the Indiana of Kinnsys specifications, latest revision

REVISIONS

D. Concrete Curb and Gutter:

- 1. Expansion Joints: Shall be 1/2 inch thick premoulded at ends of all returns and at a maximum spacing of 100
- 2. Contraction Joints: Unless otherwise provided, contraction joints shall be sawed joints spaced 20
- feet on center. 3. Finish: Tamp and screed concrete as soon as placed, and fill any honey combed place. Finish square corners to 1/4 inch radius and other corners to radii
- E. Concrete Walks and Exterior Steps conforming to Section 604 of the Indiana Dept. of Highways Specifications.
 - 1. Slopes: Provide 1/4 inch per foot cross slope. Make adjustments in slopes at walk intersections as necessary to provide proper drainage.
 - 2. Dimensions: Walks and steps shall be one course construction and of widths and details shown on the drawings.
 - 3. Finish: Screed concrete and trowel with a steel trowel to a hard dense surface after surface water has disappeared. Apply medium broom finish and scribe control joints at 5 foot spacing. Provide, 1/2 inch expansion joints where sidewalks intersect, and at a maximum spacing of 48 feet between expansion joints. 4. Wheel chair ramps shall be provided as detailed.
- Curing Concrete: Expect as otherwise specified, cure all concrete by one of the methods described in Section 501.17 of the Indiana Department of Highways Specifications, latest revisions.

3.05 SEAL COAT

- Thoroughly clean all asphaltic pavement to remove all foreign matter the same day the seal coat is to be applied. Seal coat shall not be applied when it is foggy or raining or when precipitation is anticipated before the sealer is dry or when the air or pavement temperatures are below 45 degrees F.
- B. Application shall be made with medium soft rubber squeegees in two coats worked crisscross to each other to spread a total of 0.2 gallons of seal coat per square yard of pavement. Seal coat shall be sand slurry mix for the first coat only. Sand shall be clean, well-graded fine sand which shall be mechanically mixed with the emulsion at the rate of four (4) pounds of sand for each gallon of emulsion. The second coat for parking area shall not be applied until the first coat is dry to touch and the second coat shall cure a minimum of 12 hours and until hard, before allowing any traffic on the pavement. No seal coat shall be applied without approval of the Architect.

3.06 STRIPING

A. Paint striping on parking lot as indicated on site plan. Lines shall be 4" wide.

3.07 STREET AND TRAFFIC CONTROL SIGNS

Street and Traffic Control Signs: Street name and traffic control signs shall be furnished at the developer's expense and installed prior to the release of the performance bond or prior to the issuance of the first occupancy permit, whichever occurs first. The signs shall be installed on one post at each street intersection at an appropriate spot in the northeast corner wherever possible. Signs and posts shall be standard sizes and colors on reflective surfaces in accordance with Section 909 and 912 of the Standard Specifications of the Indiana Dept. of Highways.

SECTION 02700 SITE UTILITIES

PART 1 GENERAL

- 1.01 WORK OF THIS SECTION
- A. Storm Sewer
- B. Sanitary Sewer
- C. Water
- D. Electric
- E. Telephone
- F. Gas
- 1.02 RELATED WORK A. Earthwork - Section 02220
- B. Streets and Parking Areas Section 02510.

1.03 PERMITS

- A. Obtain and pay for all fees, permits and inspections and coordinate with the proper Municipal and State authorities. Comply with State, Local and Federal requirements.
- B. Be responsible for all damages to existing roads, walks and curbs and all damages or injury arising from accidents caused by negligence or carelessness if not properly safeguarding the work. Repair to original condition.
- C. Be responsible for and safeguard public safety with respect to work of this Section.
- D. Rules and regulations governing the respective utilities shall be observed in executing all work under this
- 1.04 Project Record Documents:
- A. Submit Documents under Provision of Section 01700.
- B. Accurately record location of pipe runs, connections, cleanouts, and invert elevations.

PART 2

2.01 STORM SEWER SPECIFICATIONS

A. Scope of Work

The work under this section includes all storm sewers, storm sewer inlets, and related items, including excavating and backfilling, necessary to complete the work shown on the drawings

- B. Standard specifications of County of Hamilton and Indiana Dept. of Highways Standard Specifications shall apply for all work and materials. Pipe shall be installed in accordance with Section 715 (ISHSS).
- C. All storm sewer pipe shall be reinforced concrete pipe conforming to ASTM Designation C-76 Class III, unless otherwise noted, in accordance with Section 906. Joints shall conform to ASTM C-433 latest revision.

REVISIONS

- D. Alternate pipe material shall be (aluminized) steel material conforming to the current AASHTO M36 for pipe 18 inches and smaller with a helical corrugation of 2 2/3" x 1/2" and AASHTO M196 for pipe 21 inches and larger with a helical HyFlo corrugation of 3/4 x 3/4 x 7 1/2 ...
- All CMP pipe shall meet the following minimum gages unless specified otherwise:
- 12 inch thru 36 inch shall be 16 gage 42 inch thru 48 inch shall be 14 gage 54 inch thru 66 inch shall be 12 gage
- All sewers shall be installed so as not to exceed the maximum allowable pipe strength per ASTM and manufacturer's requirements. If additional pipe strength is required for the probable earth line load condition, the Contractor shall use a higher strength or bedding method to satisfy the conditions.
- Alternate pipe material shall be high density Polyethylene (HDPE) corregated pipe with smooth interior (N = -0.12)Pipe and fittings shall meet or exceed the requirements of Type III, Category or 5, Grade P33 or P34, Class C bedding per ASTM D1248. Soints shall be split corregated couplings at least 7 corrugations wide and exceeding the soil tightness requirements of AASITO standard specifications for Highway Bridges, Section 23 (2.23.3). Backfill and installation shall comply with manufacturer's recommendations.
- Subdrainage system shall be installed as shown on plans and be of pipes designated in Section 906 of Indiana Dept of Transportation specifictions as follows:

Pipes to be installed for subsurface drainage only may be one of the following:

- Perforated Corrugated drainage pipe in accordance with AASHTO M252 or AASHTO M 294. PVC shall have minimum cell classification conforming to requirement of 12344-C ASTN D-1784.
- Concrete drain tile in accordance with AASHTO M178. 3. Vitrified Clay tile in accordance with AASHTO M179.

Where pipe is to be used for a collector of other subsurface laterals and/or sump pumps and installed with provisions for cleaning, it shall be one of the following:

- 1. ABS Composite in accordance with ASTM D-2680 PVC in accordance with ASTM D-3034 SDR-35. 3. PVC Corrugated with smooth interior in accordance with
- Backfill around all structures and cuts under paved areas and within 5 feet of pavement edges with granular material in accordance with Section 21.1 and 715.

Select Granular Fill - Well graded sand and gravel or crushed stone that has a uniformity coefficient (ASTM D-2487) of aggrregates and contains less than 5 percent (by weight) fines passing a No. 200 Sieve size. Onsite excavated granular materials may be utilized if approved by the Soils Engineer.

- See standard detail sheet for construction dimensions of storm structures. Manholes, inlets and catch basins shall be in accordance with Section 720. Precast concrete and steel for manholes and inlets shall be in accordance with ASTM C-478, latest revision. Six inch and 8" segmental block manholes sealed with 1/2" mortar on the entire inside surface of the inlet. Steps shall be ductile iron or aluminum integrally cast into precast catch basin
- J. Rip rap shall be a minimum 6" and a maximum of 17" in size and a minimum 18" in depth. Dimensions for rip rap on this plan are for estimating purposes only. Actual best placement of rip rap shall be determined by field conditions and shall be in accordance with Section 616.
- K. All drainage pipe and ditch outfalls to receiving streams shall be constructed in accordance with drawings, subject however, to any modification required by Engineer at the time installation is completed and to any adjustments needed for field conditions not adequately anticipated by the design drawings.
- L. Castings shall be as shown on detail sheet for manufacturer, type and number. All castings shall be Neenah or East Jordan approved equal. Castings shall be gray iron meeting ASTM A-48, latest revision.
- M. Install gaskets in accordance with manufacturer's recommendations for use of lubricants, cements and other special installation requirements.
- N. Place plugs in ends of incomplete piping at end of work day or whenever work stops, and at stubs for future development.
- O. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Notch under pipe bells where applicable to provide solid bearing for entire body
- P. Trenching: Lay all pipe in open trenches, except when the local authority gives written permission for tunneling or boring. Open the trench sufficiently ahead of pipe-laying to reveal any obstructions. The width of the trench shall be the inside pipe diameter plus 24 inches for 12 inches above the pipe. Sheet and brace trench as necessary to protect workmen and adjacent structures. All trenching to comply with Occupational Safety and Health Administration Standards. Keep trenches free from water while construction is in progress. Under no circumstances lay pipe or appurtenances in standing water. Conduct the discharge from trench dewatering to drains or natrual drainage channels.
- Q. All pipes on steep slopes shall have concrete anchor approximately 1/3 cu. yd. at maximum 40 foot intervals.
- R. Backfilling: For a depth of at least 12 inches above the top of the pipe, backfill with earth or granular material free from large stones, rock fragments, roots or sod. Tamp this backfill thoroughly, taking care not to disturb the pipe. For the remaining trench depth, backfill with w. earth or granular mataerial containing stones or rocks not larger than 4 inches. Backfill under Walks, parking areas, driveways and streets shall be granular material only - thoroughly compacted, by approved methods. Trenches parallel to and within 5 feet of paved roadways shall be constructed the same.
- Manhole Inverts: Construct manhole flow channels of concrete, sewer pipe or brick, smoothly finished and of semi-circular section conforming to the inside diameter of the connecting sewers. Make changes in size or grade gradually and changes in direction by true curves. Provide such channels for all connecting sewers at each

2.02 SANITARY SEWER SPECIFICATION

A. Scope of Work

The work under this section includes all sanitary severs, manholes, castings, cleanouts, testing, permits, governmental inspections and approvals, fees, surveying layout, and related items, including excavation, backfill, granular fill, and dewatering necessary to complete the

B. Standard specifications of the Marina Limited Partnership utilities Sanitary District Standards for design and construction of sanitary sewer May, 1989 shall govern for all installation and materials.

DD. Force Main Specifications

A. Scope of Work

(AWWA C151) or PVC force main conforming to ASTM

designed for a rated working pressure of 200 psi water

D-1784 minimum class 200/SDR 21. Pipe shall be

2. PVC joints shall be push-on type, Tyton, Pastite,

fittings, valves and special crossings.

Super Bell-Tite, or approved equal, except at

iron conforming to ANSI Specification A21.10-1971

conforming to ANSI Specification A21.11-1972 (AWWA

(AWWA C110-71). Fittings shall be designed and

manufactured for a pressure rating of 250 psi.

5 Aydrostatic pressure testing on terce main shall be in accordance with Section 9.04 of Indianapolis Sanitary District Standards, May 1989

The work required under this section includes all cold

water distribution lines, valves, meter pits, hydrants,

and related items including excapating and backfilling

ends of water service lines shall be tightly plugged or

capped at the terminal points pending the connecting to

plumbing specifications and architectural drawings.

C. Iron Pipe: Cast iron pipe shall meet AWWA Specification

C-106 with push-on joints meeting AWWA Specification

C-111. Wall thickness shall be determined from Table 6.4

in AWWA C-106. Ductile iron pipe shall meet AWWA C-150

and C-151 Specifications. Pipe to be cement lined and

1. Joints shall be push-on type, Tyton, Fastite, Super

Bell-Tite, or approved equal, except at fittings,

to ANSI Specification A21.10-1971 (AWWA C110-71).

Fittings shall be designed and manufactured for a

tar-coated and shall be cement-lined in accordance

with ANSI Specification A21.4-1974 (AWWA C104-74).

to ANSI Specification A21.11-1972 (AWWA C111-72).

complying with Federal Specification WW-T-799. Fittings

shall be wrought copper or cast bronze with solder joints.

particularly as to nozzle diameters and threads, direction

of opening and dimensions of operating and cap nuts. Fire

hydrants shall have one pumper and two hose nozzles. A

valve opening not less than 5 inches and a 6 inch inlet

connection. The length of the hydrant barrel shall be

determined by the specified depth of cover over the pipe.

than that utilized by the Water Company. Hydrants shall

be located such that the direction of openings are

F. Valves: All valves and stops shall have ends suited or

All private water hydrants are to be painted a color other

adapters shall be provided for the proper installation in

the lines in which they are located. Valves shall meet

local standards or in the absence of such standards, the

1. Valves in cast iron pipe shall be iron body, bronze

Specification C-500. They shall open in the same

system. Valve stems shall terminate in 2 inch wrench

round-way, ground-key stops, with T heads. Furnish

Valve Boxes: Shall meet local standards or in the absence

1. For iron body valves, boxes shall be approved standard

buffalo-type, cast iron, adjustable shaft boxes,

having a minimum shaft diameter of 5-1/4 inches.

2. For brass body valves (stops) boxes shall be approved

in place by a brass or bronze bolt. The castings

Pressure Pipe (PVC) to AWWA C-900 standard. Pipe shall be

PVC 1120, Type 1, Grade 1, Class 100. Pipe shall conform

shall be coated with two coats of coal-tar pitch

varnish. Furnish two (2) keys for bolt in lids.

H. Plastic Pipe: Plastic pipe is to be Polyvinyl Chloride

to ASTM D2241 and shall be PR160 (SDR 26) gasket pipe.

Stops: Stop shall be those manufactured by Ford or

Blow-off Valves: Blow-off valves shall be those

K. Angle Valves: Angle valves at the end of water service

are to be protected with plastic bag over the valve.

Mueller Corporation with AWWA taper thread, and with

copper compression type fitting on outlet, or approved

manufactured by Mueller Corporation (H-10283 or H-10291),

stub are to be copper compression type fitting aos, and

Taps: 3/4 inch taps in lines smaller than 4 inches shall

The water mains shall be laid to a depth so that not less

The Contractor shall furnish the meter pit(s) of the type

as shown on the Contract Plans (meter shall be furnished

quick-disconnects, valves and appurtenances. This cost

Tests: Test the piping for leakage for a period of at

least two hours at a pressure of 150 pounds per square

leaks. Upon completion of the water distribution mains,

in accordance with the requirements of the local water

Blocking shall be required at all turns in water line

greater than 22-1/2 degrees and at all termination of

Blook Dar Bhall be place Annie & Wilsolid ground and the

flush out the system until the water runs clear. As soon

inch. Inspect all joints for leakage and remedy any

Backflow prevention valves shall be required in all meter

pits. Meter pits must be equipped with storm sewer drain

shall be included in the bid amount for water lines.

than four feet, six inches (4'-6") of cover shall be

by the Water Company) along with all necessary

or sump pump connected to storm structure.

be only by tapped tee or tapping saddle. Water service

lines should be marked on curbs with blue paint (sewer

M. Tap onto existing main shall be performed by the Water

standard cast iron extension service boxes, having a

minimum diameter of 2-1/2 inches and having lid held

of such, shall comply with the following requirements:

direction as those used in the local waterworks

mounted, disc gate valves conforming to AWWA

2. Valves in copper pipe shall be standard brass body,

D. Copper Tubing: Shall be seamless, annealed copper tubing

Solder shall be of a composition recommended by the

and shall meet local standards and requirements,

pressure rating of 250 psi. Fittings shall be

valves and special crossings. Joints shall comply

Fittings shall be cast iron or ductile iron conforming

Fittings joints shall be mechanical joints conforming

B. Standard specifications of the Indianapolis Water Co.

shall apply for all work and materials.

seal coated in accordance with AWWA C-104.

A21.10 or B16.1

manufacturer of the fittings.

directed towards the street.

nuts. Furnish two (2) keys.

Solvent joints are not acceptable.

or approved equal

Company.

provided.

department.

lateral locations - red).

following requirements

necessary to complete the work shown on the drawings. The

all such lines of the building piping as specified in the

pressure and shall be Class 50.

- Sanitary sewer pipe shall be "Contech Truss-Pipe" conforming to ASTM, D-2680 or PVC in accordance with ASTM D-3034 (S.D.R. 35) and ASTM 2321. Minimum cell classification for PVC and PVC Truss pipe shall be 12454-B or 12454-C.
- D. For all sanitary sewer joints, the Contractor shall use gasket type joints. No glue joints shall be allowed; installed and manufactured in accordance with ASTM C-425.
- E. All sanitary manholes shall be "precast concrete" manholes in accordance with ASTM C-478 and Section 720. Kent seal shall be used at manhole section joints. The bedding beneath sewer manholes shall be a minimum of 6 inches of #2 stone beneath the manhole base.
- F. The type of new manhole ring and cover shall be as specified on the standard detail sheet of these plans.
- The casting elevations are set by plan. However, the castings are to be adjusted in the field by the Engineer's representative should a discrepancy occur between plan grade and existing grade. Castings should be set 3 inches above grade in unpaved areas and graded for positive drainage away from manhole.
- No construction of sanitary sewers will be allowed to commence until a valid construction permit per 327 I.A.C. Article 3 from the Indiana Dept. of Environmental Management is obtained.
- Backfill around all structures and all cuts under paved areas with granular material. Trenches opening within 5 feet of paved roadways shall be backfilled with granular material in accordance with Section 211.
- The Contractor shall be responsible for verifying that all State, City and County permits have been obtained himself prior to start of construction,
- K. The Contractor shall be required to furnish the Engineer with a set of prints, marked in red pencil, showing actual sewer location and invert, to include lateral location, depth and length. Such "as-built" prints must be received by the Engineer before the final contract payment can be authorized. The sanitary sewer laterals and stubs termination shall be indicated on the surface with a metal fence post set immediately above said termination point.
- All sanitary sewer lines upon completion will be required to pass a low pressure air test or infiltration test, unless otherwise directed by the Engineer. Said test shall be conducted according to NCPI Standard Method, and shall be witnessed by an Engineer. Infiltration under test shall not exceed 100 gallons per inch of inside diameter of sewer pipe per mile of sewer in 24 hours and inclusive of all appurtenances within the section being tested such as manholes, house connections, etc.
- Deflection tests shall be performed on all flexible* pipe after the final backfill has been in place at least 30 days. No pipe shall exceed a vertical deflection of 5%.
- All testing and inspections will be the responsibility of the Contractor and shall be observed by a Professional Engineer for certification. Accepting agency's assigned inspector shall also observe all testing
- The ends of laterals are to be plugged tight with plastic disc or cap capable of withstanding a low pressure air test without leakage.
- The Contractor shall provide a minimum of 1' of cover over P. Class C bedding as described in ASTM C-12-74 (ANSIA 106.2) or ASC MOP No. 37 shall be used, except where specified otherwise. All precast manholes shall be bedded on a granular foundation (6 inches minimum).
 - Water and sewer lines crossings and separations shall be in accordance with Ten State Standards and local codes.
 - Where water lines and sewer lines cross and the water line cannot be placed a minimum of 18" above the sewer line, with a minimum cover of 48", the sewer lines shall be constructed of water works grade with mechanical joints.
 - Where water lines and sanitary sewer lines run parallel with one another, a minimum of 10' horizontal separation shall be maintained.
 - R. Trench shall be opened sufficiently ahead of pipe laying to reveal obstructions, and shall be properly protected and/or barricaded when left unattended. Lay all pipe in open trenches, except when the local authority gives written permission for tunneling. The width of the trench shall be 1 1/4 times the outside diamater plus 12". Sheet and brace trench as necessary to protect workmen and adjacent structures. All trenching to comply with Occupational Safety and Health Administration Standards. Keep trenches free from water while construction is in progress. Under no circumstances lay pipe or appurtenances in standing water. Conduct the discharge from trench dewatering to drains or natural drainage channels.
 - Forty-eight (48) hour notice shall be give to Marina Limited Partnership utilities prior to the start of sewer construction. Also, 48 hour notice shall be given prior to any testing done on the sewer.
 - All connections to existing manholes shall be core drilled unless otherwise approved by accepting agency.
 - All pipe openings in manholes, including laterals, shall be fitted with rubber rings or gaskets. Manhole sections shall have "O" rings, which shall meet ASTM C-433. Manhole waterstops shall be installed at all connections, to manholes, where flexible-type manhole connections are
 - The contractor will be required to provide as-built drawings to the accepting agency to certify the elevation and slope of sanitary sewers. Sewers installed at a grade less than required by Ten State Standards will not be accepted and will be the confractor's responsibility to install properly. Contractor shall provide for periodic as-built checks on the sewer elevation during construction to assure that the design grade is being maintained.
 - The minimum thickness for concrete encasement shall be 6
 - Pipe bedding shall be a minimum of 12" of #8 stone above the pipe and a minimum of 4" below the pipe.
 - the benchwalls extending to the crown of the incoming and All sanitary sewer pipe crossing bodies of water must be ductile iron pipe with mechanical joints. In addition, where there is less than 4 feet from the crown of the pipe to the stream bed, the pipe must be encased in concrete.

The flow channels through manholes shall be U-shaped with

- AA. No water shall be permitted to flow into the sanitary sewer system. Contractor shall utilize a pump to keep the water level below the pipe. Pump discharge shall be directed to a storm outlet. --
- Storm Water Connections: No roof drains, footing drains and/or surface water drains may be connected to the sanitary sewer systems, including temporary connections during construction.
- No building lateral connections shall be permitted until the sanitary sever has been tested, inspected and accepted by the governing agency. Failure to comply may require

- R. Shops Drawings: Submit Shop Drawings of hydrants and 1. Force main shall be ductile iron manufactured and valves to City Engineer for approval. designed in accordance with ANSI Specification A21.51
 - Sheeting and Bracing: Sheet and brace trenches as necessary to protect workmen and adjacent structures. All trenching shall comply with the Occupational Safety and Health Administration Standards.
- T. New Water Main Construction: Contractor to record dimension of each water stub and valves from nearest fire hydrant measured along water main. The locations of hydrants and water valves, along with any other 3. Ductile fittings shall be cast be cast iron or ductile construction changes are to be incorporated on the original construction drawings and "Record Drawing" prints
- 4. Ductile iron fitting joints shall be mechanical joints U. If a horizontal distance of 10 feet cannot be maintained between the water line and sanitary sewer line, one of the following shall be done:
 - Water line laid in a separate trench and 18 inches

submitted to City Engineer's Office as soon after

completion of construction as possible.

- above top of sewer. Water line laid in same trench on a bench of undistrubed earth and sewer at least 18 inches below bottom of water line.
- Where water lines and sewers cross and the water line cannot be placed above the sanitary sewer with a minimum of 18 inches vertical clearance, the sewer must be constructed of water works grade with mechanical joints within ten feet of the water line.
- This Contractor shall perform all required flushing/cleaning and testing of water lines. This work shall be performed in accordance with the Standard Specifications.
- Identification tape shall be installed for all buried water lines in accordance with the manufacturer's installation instructions. Tape shall be installed one foot below final grade over centerline of pipe.
- Tape for ductile iron and steel pipe shall be inert polyethylene with a minimum thickness of 4-mils and shall be 6 inches wide. Tape for PVC pipe shall be polyethylene with a minimum thickness of 4-mils and shall have a 1-mil thick metallic foil core. Tape shall be 3 inches wide.

with AWWA C-111. Flanged joints shall conform to ASA 2.04 ELECTRIC/TELEPHONE

- A. The Contractor shall coordinate the work and provide all trenching and backfill for electric service cable and shall pay Utility Company charge for installing cable. Contractor shall install conduit under all paving and walks. (Cendu
- Electric Company shall furnish and install overhead service or underground cable and install meter.
- The contractor shall install conduit furnished by utility companies at their direction before any street or pavement is constructed.

PART 3 Fire Hydrants: Shall comply with AWWA Specification C-502 3.01 CONSTRUCTION

- All utility improvements shall conform to the current State Environmental Protection Agency Construction and Material Specifications and/or the current Local and State
- Construction and Materials Specification. The Contractor's bid shall be comprehensive and include all labor, construction staking, materials, inspections and permit fees necessary to complete all utilities improvements in accordance with the Plans and
- The Contractor shall locate all utilities or underground structures prior to construction and notify each respective utility owner 48 hours prior to commencement of
- construction. D. The Contractor shall refer to the Utility Plan and
- Elevations to determine critical utility crossings. In pavement areas, under buildings and utility crossing
- areas, the backfill shall be compacted granular material. F. Quantities shall be calculated by the Contractor for bid
- G. The Contractor shall restore off-site construction areas to an equal or better condition than existing prior to commencement of the construction. Record photographs should be taken prior to construction start.
- Provide excavation and backfill for site electric and telephone service to all buildings Provide 4 inch PVC (\$chedule 20) conduit under paving areas. Coordinate requirements and schedule with the Electric Company and the Telephone Company, and the cable television company.
- Traffic shall be maintained on public roads at all times. If traffic cannot be maintained, traffic control should be arranged with local authorities if it is not part of construction permit. Utilities: It shall be the responsibility of each contractor to verify all existing utilities and conditions pertaining to his phase of work. It shall also be the

contractor's responsibility to contact the owners of the

various utilities before work is started. The contractor

shall notify in writing the owners or the Engineer of any

changes, errors or omissions found on these plans or in the field before work is started or resumed. K. If active utilities are encountered but not shown on the drawings, the Engineer and utility representative shall be

advised before work is continued.

- Inactive and abandoned utilities encountered in excavating and grading operations shall be reported to the Engineer and utility company. They shall be removed, plugged or capped as directed by the utility company and Engineer.
- Existing storm sewers, sanitary sewers, water mains, gas mains, electric ducts, telephone ducts, steam mains and other underground structures and their house connections have been shown on the plans according to the best available information. The exact location and protection of these facilities and structures, their support and maintenance in operation during construction (in cooperation with the proper authorities of the utility involved), is the express responsibility of the Contractor in the performance of his contract and in the preparation

3.02 FIELD QUALITY CONTROL

- A. Field inspection will be performed under provisions of
- B. Request inspection by Engineer prior to placing fill cover
- A. Protect finished installation under provisions of Section as the system has been flushed out, it shall be sterilized
 - Protect pipe from damage or displacement until backfilling operation begins.

NOTE: IF ANY CONFLICT SHALL BE FOUND BETWEEN THE ANALYSIS FLEATHERS COMMINGETON CONSUMPLY TO THE STATE OF THE PARTY DWG. TYPE FILE NUMBER

SHEET JOB NUMBER 81100-24000

PAUL I. CRIPE, INC. fitt ng to be anchored. STANDARD SPECIFICATIONS ● LAND SURVEYING 7172 GRAHAM ROAD ARCHITECTURE SHEET 2 OF 2 INDIANAPOLIS, INDIANA 46250 This copy (13157) from (13157) re of the Hamilton County Surveyor's Office; One Ann Poor CL Aganu, NG 188, Noblesville, In 46060 DATE: 1 - 2.5 - 96