

# ADVANCED TECHNOLOGY MASTER PLAN



Adopted: August 22, 2000  
Latest Revision: December 31, 2013

Advanced Technology Master Plan  
Latest Revision: December 31, 2013

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(Trunk Line System)
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# **INTRODUCTION**

**City of Brentwood  
Advanced Technology Master Plan  
Adopted August 22, 2000**

***PREVIOUS COUNCIL ACTIONS***

On February 9, 1999, by Resolution No. 99-45, the City Council of Brentwood authorized the City Engineer to solicit request for proposals (RFP) from advanced technology firms to develop a citywide advanced technology master plan and to prepare standard plans, specifications, and testing criteria for a fiber optic system within the City of Brentwood.

On February 23, 1999, by Ordinance No. 609, the City Council of Brentwood adopted the revision of the Municipal Code to include advanced technology systems to the existing subdivision section of said code.

On May 11, 1999, by Resolution 99-121, the Council authorized the City Manager to enter into a professional services agreement with Media Connections Group for the design of an Advanced Technology (Fiber Optic) Master Plan.

On August 22, 2000, the Council adopted the Advanced Technology (Fiber Optics) Master Plan (CIP Project No. 336-3107), and authorized the City Engineer to make revisions to the specifications and details as necessary in the future.

***BACKGROUND***

Beginning in February 1999, the Engineering Department required all new subdivisions to install and dedicate to the City of Brentwood conduits for future use of fiber optics within public streets, and to construct lateral conduits up to the private dwellings. The Engineering Department developed temporary specifications for material selection and placement.

The City hired Media Connections Group. MCG immediately worked on developing a citywide master plan for a fiber optic communication system. Key elements of the plan include a fiber optic master ring (trunk line system), interconnection from the ring to the individual residential developments, a set of rules for conduit placement within new developments, and supporting details such as joint trench construction, and termination of services in residences. On November 5, 1999, Media Connections Group submitted their report outlining the development and recommendations for the Master Plan.

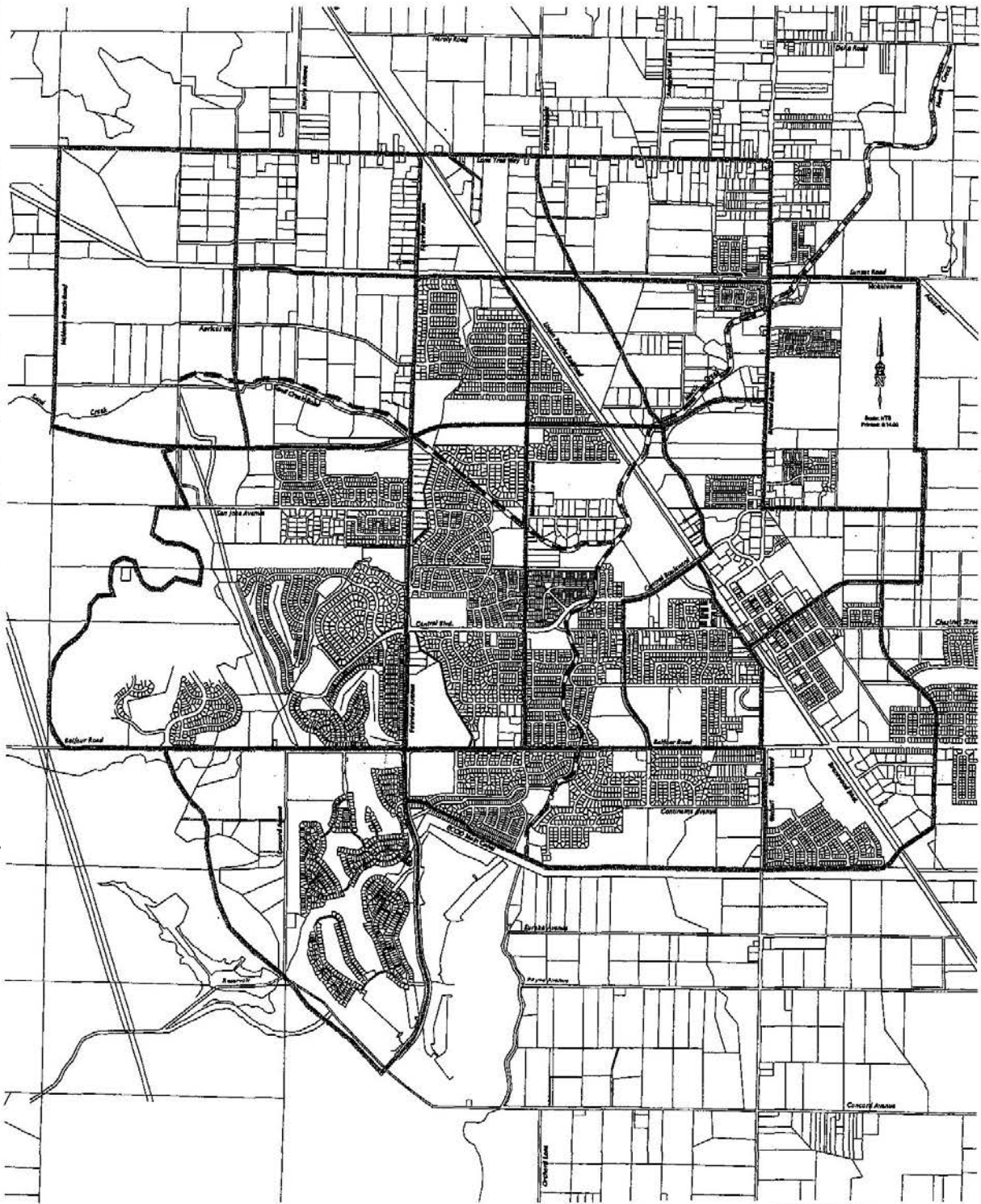
The City of Brentwood utilized the report as prepared by MCG and with input from the communication industry, i.e., manufacturers, suppliers, installers, designers, and electrical, gas, communication and cable providers, the Engineering Department has prepared this Fiber Optic Master Plan. This plan is limited to the conduit system, but shall be expanded to include information for fiber optic cable and equipment once a fiber optic provider(s) has executed a licensed franchisee agreement with the City of Brentwood.

***DESCRIPTION OF FIBER OPTIC MASTER RING***

This Ring depicts the ultimate alignment of a fiber optic conduit system throughout the City and is designed to be "fiber optic" ready at a future time. The trunk line conduit system shall consist of 2 - 4"  $\phi$  conduits, or equivalent duct capacities. Currently with new development and Capital Improvement Projects, portions of the fiber optic conduit system are being installed. With future projects, the City anticipates linking all the conduits to form the Fiber Optic Master Ring (Trunk Line System) as attached.

**CITYWIDE  
“FIBER OPTIC MASTER RING”  
(TRUNK LINE SYSTEM)**

City of Brentwood  
**ADVANCED TECHNOLOGY MASTER PLAN**  
**Citywide "Fiber Optic Master Ring"**  
(Trunk Line System: 2 - 4" Ø, or equivalent)

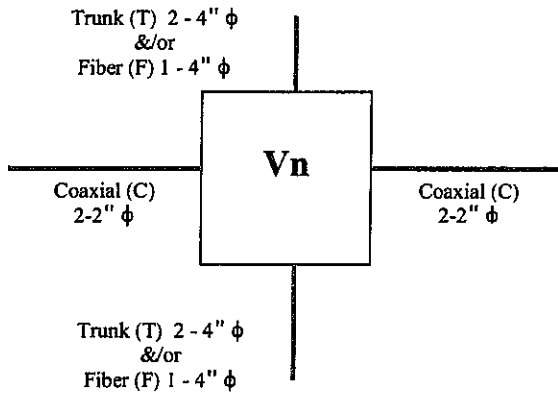


# **VAULT TYPES DETAIL**

## Vaults Types for Fiber Optic Conduit System

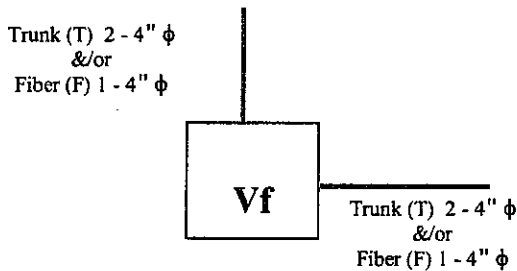
The premise of the fiber optic design is that in the future when the fiber optic plant is pulled, the conversion from coaxial (C) to fiber optics (F) will take place at the Node Vault (Vn). The Vn vault is the only junction where the coaxial conduit (C) and fiber optic conduit (F) will interconnect. After that, the fiber conduit (F) goes into the Fiber Splice Vault (Vf) and the coaxial conduit (C) goes into the Service Vault (Vs).

### GENERIC CONDUIT CONFIGURATION



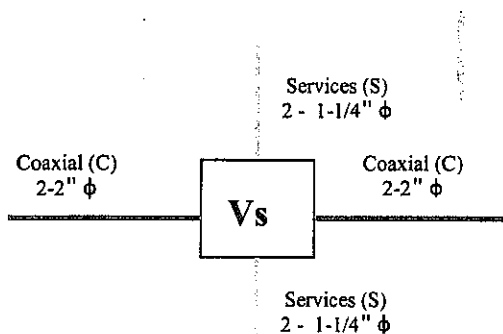
**Node Vault (Vn):**

- 3'(W) x 5'(L) x 4'-6"(D)
- Function: Future conversion from Fiber Optics to Coaxial Distribution
- Maximum terminations: 12 (4 - 2"  $\phi$  pairs, plus 4 - 4"  $\phi$ )



**Fiber Vault (Vf):**

- 30"(W) x 48"(L) x 34"(D)
- Function: Fiber Optics Splice Box
- Maximum terminations: 4 - 4"  $\phi$



**Service Vault (Vs):**

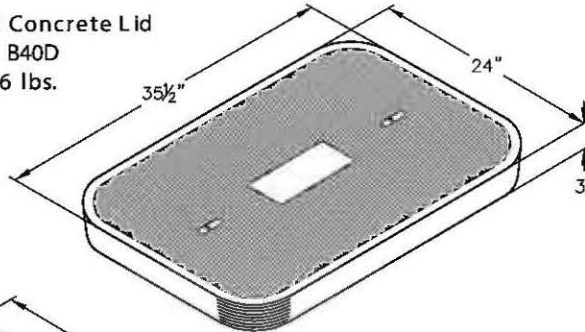
- 24"(W) x 36"(L) x 34"(D)
- Function: Service vaults for conduit runs to residential homes/businesses
- Typically placed 1 vault for every 4 homes
- Maximum terminations: 20 (6- 1 1/4"  $\phi$  pairs, plus 4 for 2"  $\phi$  pairs)



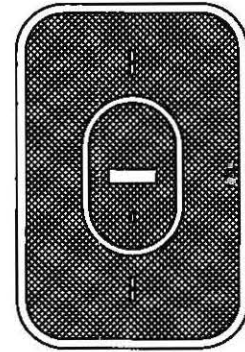
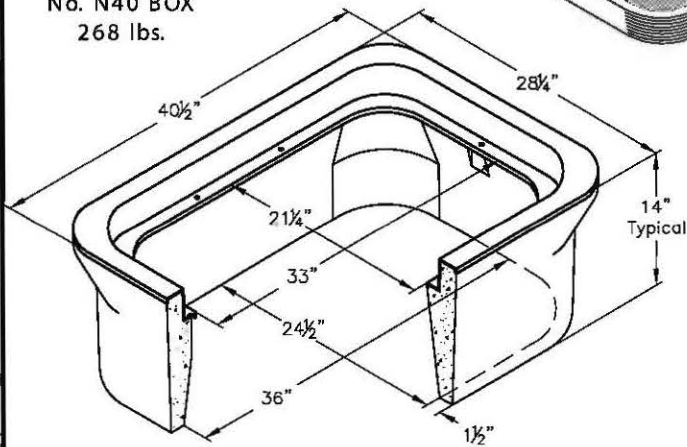
# **CUT-SHEETS FOR FIBER OPTIC CONDUIT PRODUCTS**

- Etched polypropylene face
- Face anchored in concrete
- Ultra-violet inhibitor
- Exceeds ASTM-D1693 Standards for Environmental Stress Cracking Resistance

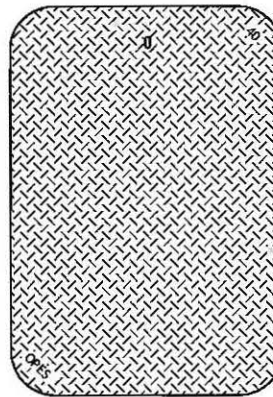
Reinforced Concrete Lid  
No. B40D  
196 lbs.



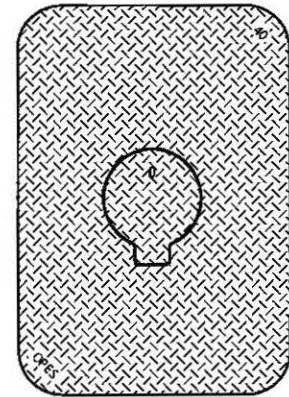
Utility Box  
No. N40 BOX  
268 lbs.



B40M



B40-61D



B40-61G

A high density reinforced concrete box with non-settling shoulders positioned to maintain grade and facilitate back filling. Approximate dimensions and weight shown.

Oldcastle Ordering Code	Item	Approx. Shipping Weight	Description
N40BOX	BOX	268 lbs.	N40 Utility Box (24 1/2" x 36") - 3 per pallet
B40D	LID	196 lbs.	Reinforced Concrete Lid
B40M	LID	168 lbs.	Reinforced Concrete with 10" x 16" Oval, Reading Lid
B40-61D	COVER	82 lbs.	Steel Checker Plate
B40-61G	COVER	84 lbs.	Steel Checker Plate with 10" Round, Self-Closing Reading Lid
N40X10	EXTENSION	215 lbs.	10" Reinforced Concrete - 4 per pallet
B40SL	SLAB	201 lbs.	Reinforced Concrete (30" x 40")

Galvanizing available on all steel covers



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N40 BOX

FILE NAME: B40\_ISO

ISSUE DATE: January, 2011

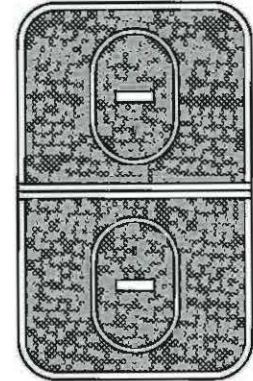
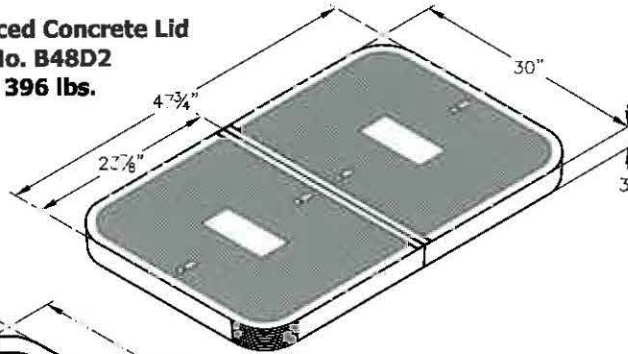
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N40 UTILITY BOX  
24-1/2" x 36"



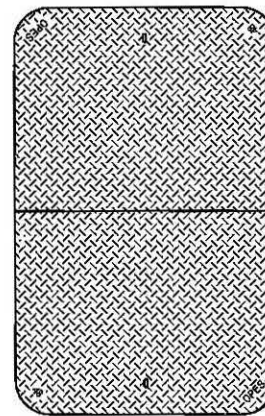
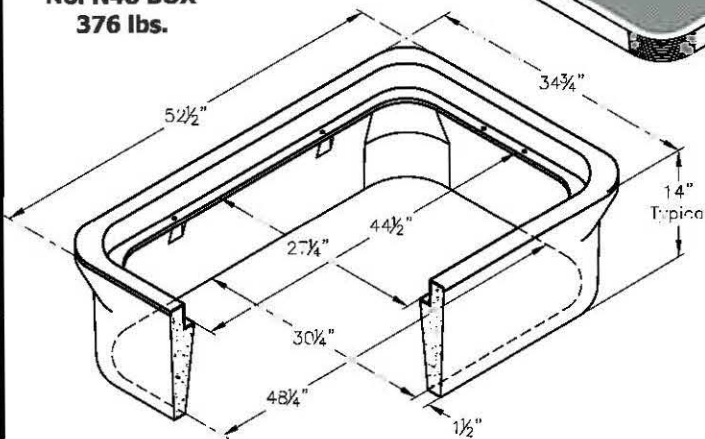
- Etched polypropylene face
- Face anchored in concrete
- Ultra-violet inhibitor
- Exceeds ASTM-D1693 Standards for Environmental Stress Cracking Resistance

**Reinforced Concrete Lid  
No. B48D2  
396 lbs.**

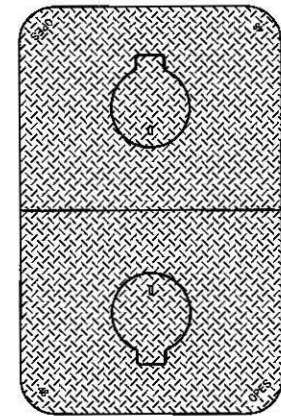


**B48M2**

**Utility Box  
No. N48 BOX  
376 lbs.**



**B48-62D**



**B48-62G**

A high density reinforced concrete box with non-settling shoulders positioned to maintain grade and facilitate back filling. Approximate dimensions and weight shown.

Oldcastle Ordering Code	Item	Approx. Shipping Weight	Description
N48BOX	BOX	376 lbs.	N48 Utility Box (30 1/4" x 48 1/4") - 3 per pallet
B48D2	LID	396 lbs.	2 pc. Reinforced Concrete Lid
B48M2	LID	321 lbs.	2 pc. Reinforced Concrete with two 10" x 16" Oval, Reading Lids
B48-62D	COVER	155 lbs.	2 pc. Steel Checker Plate
B48-62G	COVER	154 lbs.	2 pc. Steel Checker Plate with two 10" Round, Self-Closing Reading Lid
N48X10	EXTENSION	288 lbs.	10" Reinforced Concrete - 3 per pallet
B48SL	SLAB	406 lbs.	Reinforced Concrete (36" x 53")

Galvanizing available on all steel covers



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**N48 BOX**

FILE NAME: B48\_ISO

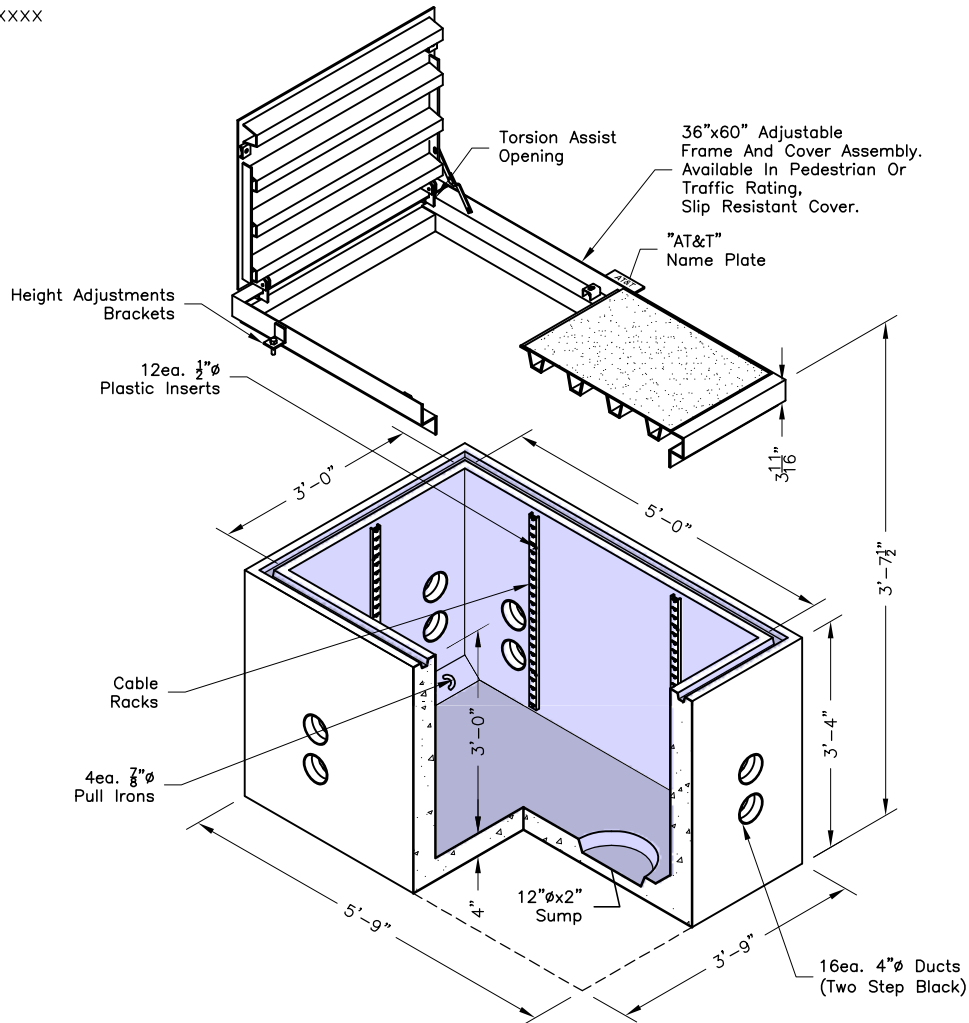
ISSUE DATE: January, 2011

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**N48 UTILITY BOX  
30-1/4" x 48-1/4"**



**V353ATT Base**  
Weight: 4,140 lbs.  
Item #: xxxxxxxx

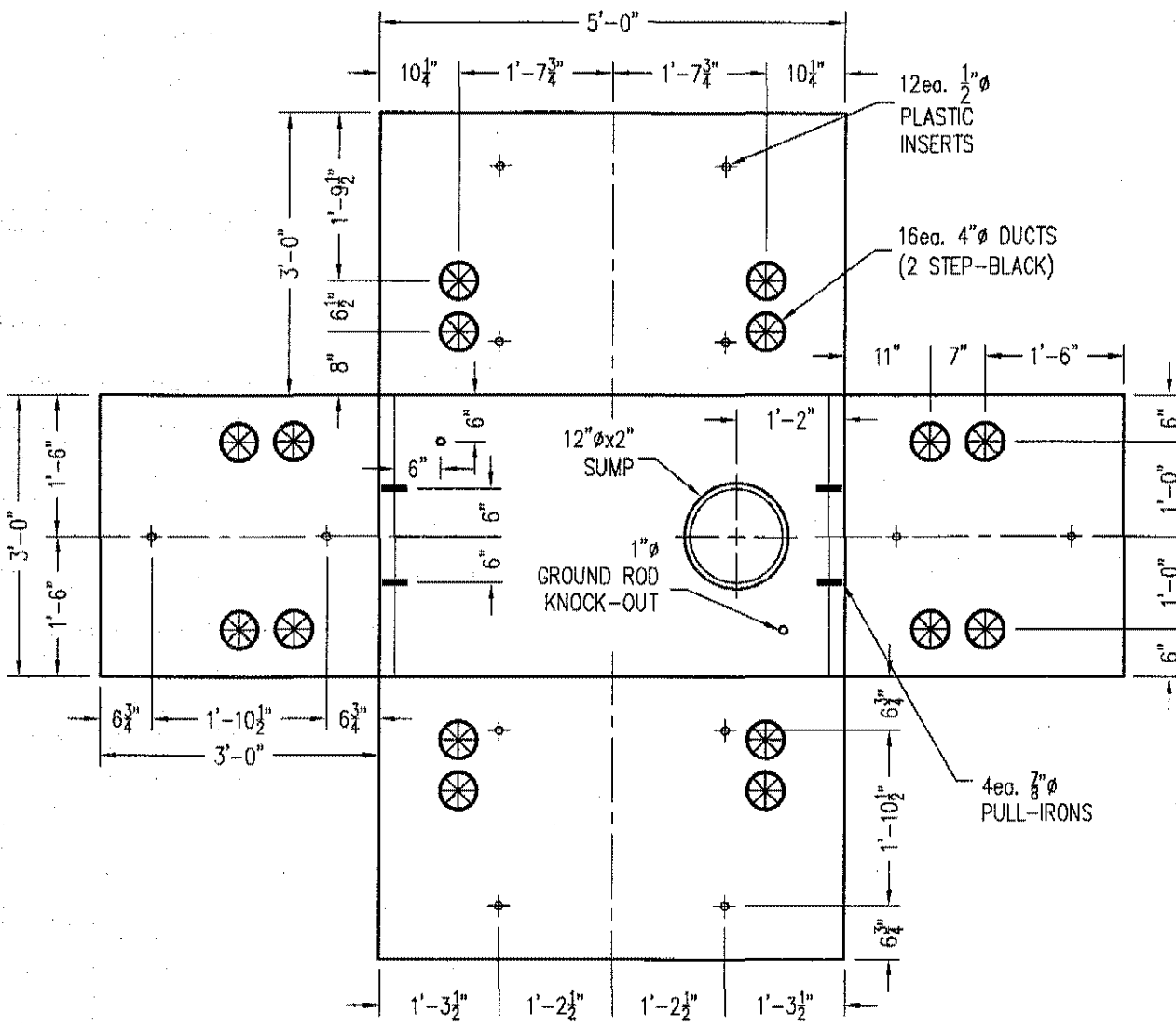


**SPECIFICATIONS:**

1. Concrete shall be 5000 PSI at 28 day compressive strength.
2. Steel reinforcement: Rebar, ASTM A-615 Grade 60 or Mesh, A-185 Grade 65.

**GENERAL NOTES:**

1. Optional 6" & 12" extensions are available.



SCALE: Not To Scale



UTILITY VAULT<sup>®</sup> Pleasanton

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Phone: 925-846-8183 Fax: 925-846-4904

**AT&T-3660**

FILE NAME: 030UTTAT&T3660B.dwg

ISSUE DATE: July, 2006

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**3 x 5 x 3 I.D.  
Sub-Surface Enclosure  
AT&T**

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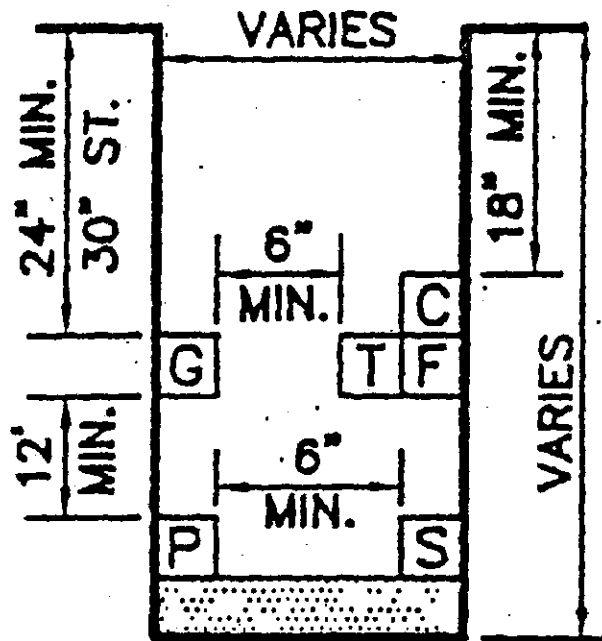
Oldcastle Precast, Inc.

# **DWELLING TERMINATION CONFIGURATION**



# **JOINT TRENCH DETAIL**





## TYPICAL SECTION

- |          |             |          |            |
|----------|-------------|----------|------------|
| <b>G</b> | GAS         | <b>T</b> | TELE.      |
| <b>P</b> | ELECT. PRI. | <b>C</b> | CATV (TCI) |
| <b>S</b> | ELECT. SEC. | <b>F</b> | FIBER-OPT  |

# **PREVIOUS COUNCIL ACTIONS**

RESOLUTION NO. 2139

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BRENTWOOD ADOPTING THE ADVANCED TECHNOLOGY (FIBER OPTICS) MASTER PLAN (CIP PROJECT NO. 336-3107) AND AUTHORIZING THE CITY ENGINEER TO MAKE REVISIONS TO THE SPECIFICATIONS AND DETAILS AS NECESSARY IN THE FUTURE.

**WHEREAS**, on May 11, 1999, by Resolution 99-121, the Council authorized the City Manager to enter into a professional services agreement with Media Connections Group for the design of an Advanced Technology (Fiber Optic) Master Plan; and

**WHEREAS**, the key elements of the plan include a fiber optic master ring, interconnection from the ring to the individual residential developments, a set of rules for conduit placement within new developments, and supporting details such as joint trench construction, and termination of services in residences; and

**WHEREAS**, on November 5, 1999, Media Connections Group submitted their report outlining the development of the attached Master Plan.

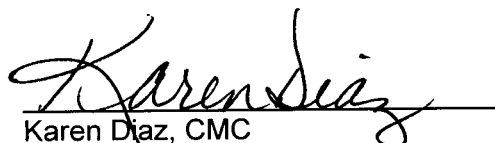
**NOW, THEREFORE, BE IT RESOLVED** that the City Council of the City of Brentwood hereby adopts the Advanced Technology (Fiber Optics) Master Plan (CIP Project No. 336-3107) and authorizes the City Engineer to make revisions to the specifications and details as necessary in the future.

**PASSED, APPROVED AND ADOPTED** by the City Council of the City of Brentwood at a regular meeting on the 22<sup>nd</sup> day of August 2000 by the following vote:

**AYES:** Councilmembers Gomes, McPoland, Petrovich, Young, Mayor Kidd  
**NOES:** None  
**ABSENT:** None

  
Quintin L. Kidd  
Mayor

ATTEST:

  
Karen Diaz, CMC  
City Clerk

**ORDINANCE NO. 609**

**AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF BRENTWOOD AMENDING A SECTION OF CHAPTER 16.120, LAND DEVELOPMENT PROCEDURE, OF TITLE 16, SUBDIVISIONS AND LAND DEVELOPMENT, OF THE BRENTWOOD MUNICIPAL CODE TO INCLUDE ADVANCED TECHNOLOGY SYSTEMS TO THE EXISTING CABLE TELEVISION SECTION OF THE CODE.**

**WHEREAS**, Government Code Sections 66473.3 and 66473.6 authorize the City to require developer installation and dedication of cable television and advanced technology systems to serve each subdivision in the city; and

**WHEREAS**, the installation and dedication requirements set forth herein are reasonably related to the City's interest in improving the communications system of the City and are roughly proportional to the impacts of subdividing property in the City; and

THE CITY COUNCIL OF THE CITY OF BRENTWOOD DOES ORDAIN AS FOLLOWS:

Section 16.120.120 of the Brentwood Municipal Code is hereby amended in full to read as follows:

16.120.120 Undergrounding—Electric, Communication, Street Lighting and Advanced Technology Systems.

A. General Provisions.

1. Utility distribution facilities, including but not limited to electric, communication, street lighting, and advanced technology systems installed in and for the purpose of supplying service to any development, shall be required to be placed underground. Advanced technology systems shall be defined as: all necessary appurtenances, equipment and facilities required for the provision of Internet, computer, fiber optic, cable television, telephone, and other communication services within the public right of way and upon private property. The design, installation, inspection and testing requirements for City acceptance of said system shall meet the minimum requirements as outlined in the City of Brentwood Standard Plans and Specifications as approved by the City Engineer. The developer shall also dedicate to the City that portion of the system within the public right of way and shall dedicate to the property owner the portion of the system within the private property.

2. All existing facilities except transmission facilities either along abutting streets or within a development shall also be underground at the time of development. Along abutting streets shall mean on the same side of the abutting street as the property being developed, not the other side of the street.

3. The developer is responsible for complying with all requirements of this subsection, and shall make the necessary arrangements with the utility companies for the installation of such facilities.

4. The City Council, following the consideration by the Planning Commission, may waive undergrounding requirements if unusual topographical, soil or any other unusual problems make such underground installations unreasonable or impractical in accordance with the following:

a. If the requirement to underground utilities is waived, the City Council may require the recordation of an improvement agreement, requiring the property owner and any subsequent owner of the subject property to join an underground utility assessment district, reimbursement district or similar improvement district, when such a district is formed, and to guarantee participation in such district by posting an improvement bond and recording a lien on subject property.

b. The affected developer or any utility company may submit information supporting a request for such waivers.

c. No waiver shall be granted in any undergrounding district previously established.

B. Electric, Communication, Street Lighting, and Advanced Technology Systems.

All costs of placing existing or new facilities, required to be undergrounded by the developer, shall be paid for by the developer subject to the current California Public Utility Commission rules and regulations.

C. Advanced Technology Systems.

1. The developer shall design, install, test, and dedicate to the City two advanced technology system conduits, size to be determined, within the public right of way. The developer shall install, in one of the conduits, a fiber optic system designed to serve the subject development for use by the City of Brentwood or one of its licensed franchisee. The fiber optic system shall be installed in accordance with the Citywide Advance Technology Master Plan and approved by the City Engineer. The fiber optic system shall be installed in accordance with the Citywide Advance Technology Master Plan and approved by the City Engineer. The second conduit shall remain empty and shall be reserved to serve the subject development for the use of a City licensed franchisee not wishing to utilize the City's fiber optic system. Both conduits shall be installed to each lot line. The developer shall bear all design, construction, inspection, and testing costs associated with these underground requirements. Furthermore, the developer shall design, install, test and dedicate to the City all necessary components of the advanced technology system as depicted on the Citywide Advanced Technology Master Plan.

2. The developer shall design, install, test, and dedicate to the property owner two advanced technology system conduits, size to be determined, to connect the public advanced technology system to the individual home or building. The developer shall install, in one of the conduits, a fiber optic system designed to serve the subject property. The fiber optic system shall be installed in accordance with the Citywide Advance Technology Master Plan and approved by

the City Engineer. The second conduit shall remain empty and shall be reserved to serve the subject property for the use of a City licensee franchisee not wishing to utilize the City's fiber optic system. The developer shall bear all design, construction, inspection, and testing costs associated with these underground requirements.

3. The cable television or advanced technology company franchisee that elects to install facilities in the City's vacant conduit shall provide plans and specifications to the developer and the City of Brentwood. The licensed franchisee shall also inspect the facilities and certify to the City prior to final approval of the development that the cable television facilities or advanced technology systems are properly installed and serviceable. The design and installation shall meet the minimum criteria as outlined in the City of Brentwood Standard Plans and Specifications.

THIS ORDINANCE was first introduced with first reading waived at a regular meeting of the City of Brentwood City Council on February 9, 1999, and was passed and adopted at a regular meeting of the Brentwood City Council on February 23, 1999 by the following vote:

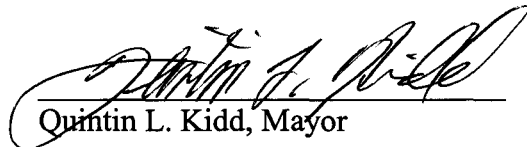
**AYES:** Councilmembers Petrovich, Gomes, McPoland, Young and Mayor Kidd

**NOES:** None

**ABSENT:** None

**ABSTAIN:** None

**APPROVED:**

  
Quintin L. Kidd, Mayor

**ATTEST:**

  
Jon Elam, City Manager